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November 28, 2007
(PBW Project No. 1352)

VIA OVERNIGHT DELIVERY

Mr. Gary Miller, Remedial Project Manager
U.S. Environmental Protection Agency, Region 6
Superfund Division (6SF-AP)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Phase 1 Soil Investigation Data and Proposed Phase 2 Soil Investigation Activities,
Gulfco Marine Maintenance Site, Freeport, Texas

Dear Mr. Miller:

Per our recent discussions, this letter has been prepared to provide a summary of soil data collected as part of the Remedial Investigation/Feasibility Study (RI/FS) at the subject site (the Site), and to propose additional soil investigation activities to be performed on the basis of those data. This information is provided by Pastor, Behling & Wheeler, LLC (PBW) on behalf of LDL Coastal Limited LP (LDL), Chromalloy American Corporation (Chromalloy) and The Dow Chemical Company (Dow). In accordance with Paragraph 52 of the modified Unilateral Administrative Order for the Site, I certify that I have been fully authorized by the Respondents to submit these documents and to legally bind all Respondents thereto.

This letter includes the modifications requested by the United States Environmental Protection Agency (EPA) in a letter dated October 30, 2007, which approved (with modifications) the original version of this letter submitted on September 11, 2007.

EXISTING DATA SUMMARY

In accordance with Section 5.6.3 of the RI/FS Work Plan (the Work Plan), soil samples were collected for chemical analysis from the 0 to 6 inch and 1 to 2 foot depth intervals at 99 locations on the Site. The sample locations from that part of the Site south of Marlin Avenue (hereafter referred to as the South Area) are shown on Figure 1. The sample locations from that part of the Site north of Marlin Avenue (hereafter referred to as the North Area) are shown on Figure 2.

In accordance with the Work Plan provisions, the analytical data from these samples were used to evaluate the extent of contamination at the Site, and assess the need for additional soil sampling activities. This evaluation entailed a comparison to Preliminary Screening Values (PSVs) for soil as listed in Tables 15 or 16 of the Work Plan, subject to a comparison to background concentrations, as determined from Site-specific background samples or Texas-specific background concentrations provided in 30 TAC 350.51(m). The following soil data were used in this evaluation:

- (1) Analytical data for the 0 to 6 inch and 1 to 2 foot depth interval samples from the westernmost grid column of the South Area sample grid (Grid Column A as shown on Figure 1) were used to evaluate the western extent of contamination in the South Area.
- (2) Analytical data for the 0 to 6 inch and 1 to 2 foot depth interval samples from the easternmost grid column of the South Area sample grid (Grid Column L as shown on Figure 1) were used to evaluate the eastern extent of contamination in the South Area.
- (3) Analytical data for the 1 to 2 foot depth interval samples from all locations were used to evaluate the vertical extent of contamination at the Site.

Since the lateral extent of soils in the North Area is bounded by the surrounding wetland areas (where wetland sediment samples were collected), the lateral extent of soil contamination in this area has been effectively been determined. The lateral and vertical extent of contamination in wetland sediments is being evaluated separate from this letter.

Site-specific background data were obtained from ten surface soil samples collected from within the approved background area approximately 2,000 feet east of the Site near the east end of Marlin Avenue. These samples were analyzed for selected metals, pesticides, and semi-volatile organic compounds (SVOCs). Results of these analyses are provided on the enclosed DVD. Pesticides, SVOCs, antimony and cadmium were not detected at sufficient frequencies in background soil samples to warrant the development of site-specific background values for these compounds. Site-specific background values were developed for all other metals analytes.

In order to evaluate the extent of contamination, chemical concentrations in perimeter samples (both horizontal and vertical as encompassed by the three data sets described above) were compared to PSVs and background data on an individual sample basis. Consistent with the approach described in Chapter 5 of EPA's *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites* (EPA, 2002) for single sample comparisons, tolerance intervals were calculated for the Site-specific background metal analytes. EPA 2002 refers to Gibbons, 1994 for a detailed discussion of the tolerance interval methodology. Appendix B provides the sections of Gibbons, 1994 describing tolerance limits and the tolerance limit calculation details for the Site-specific background metals data. These values were used in the evaluation of the three perimeter sample data groups as described below.

Western Extent of Contamination Evaluation

As noted above, the western extent of soil contamination in the South Area was evaluated based on analytical data for the 0 to 6 inch and 1 to 2 foot depth interval samples from the westernmost grid column of the South Area sample grid (Grid Column A on Figure 1). As shown on Table 1, the comparison values for each chemical of interest are the higher of its PSV or background value (where applicable). The PSVs listed in Table 1 are from Table 16 of the Work Plan, with adjustments for changes in TCEQ Protective Concentration Levels (PCLs) between 2005 and 2007, and a revision in the iron screening value based on an updated National Center for Environmental Assessment (NCEA) iron reference dose. The background values listed in Table 1 are the Texas-specific background concentrations provided in 30 TAC 350.51(m) and the Site-specific background values determined as described above.

Soil data from western perimeter samples (i.e., Grid Column A locations) are provided on the enclosed DVD. Table 3 lists the detected soil concentrations in these samples that exceed the Table 1 comparison values. These exceedences are also plotted by location on Figure 3. The Work Plan specifies that where exceedences are indicated at perimeter locations, then a minimum of two additional grids should be created outside the exceeding grid with a sample collected from one random location within each grid. The specified additional grids and proposed random locations within the grids are shown in Figure 3. As indicated thereon, the second grid column (going from east to west) for many grid rows falls entirely within the former commercial marina boat slip area, and as such soil samples are not proposed within these grids. Sampling methods and analyses for samples from the proposed locations shown in Figure 3 are described later in the Proposed Phase 2 Soil Investigation Activities section of this letter.

Eastern Extent of Contamination Evaluation

The eastern extent of soil contamination in the South Area was evaluated based on analytical data for the 0 to 6 inch and 1 to 2 foot depth interval samples from the easternmost grid column of the South Area sample grid (Grid Column L on Figure 1). Because the property east of the South Area (see Figure 1) is an operating industrial facility without ecological habitat, as previously discussed with you, it is proposed that ecological PSVs would not apply to the lateral extent evaluation in this area. Thus, the comparison values in Table 2, which include PSVs from Table 15 of the Work Plan with the ecological PSVs removed, were used for this evaluation. As for Table 1, the comparison values for each chemical of interest in Table 2 are the higher of its PSV or background value (where applicable).

Soil data from eastern perimeter samples (i.e., Grid Column L locations) are provided on the enclosed DVD. None of the detected concentrations in these samples exceeded the Table 2 comparison values. As a result, the eastern extent of soil contamination has been identified by existing data and no further soil investigation to the east is proposed.

Vertical Extent of Contamination Evaluation

The vertical extent of soil contamination in the South Area was evaluated based on analytical data for the 1 to 2 foot depth interval samples from all locations in the North and South Areas. The applicability of ecological PSVs for this vertical extent evaluation was assessed in Appendix C. As described therein, Site soils conditions suggest that there is limited potential for significant biological activity below a depth of two feet and representative Site ecological receptors typically do not burrow to this depth, regardless. Based on these considerations, human health PSVs (as reflected in Table 2) were used (with background) for the vertical extent of soil contamination evaluation. It should be noted, however, that the ecological risk assessment for the Site will be conducted using soil data from this area as appropriate.

Soil data from the 1 to 2 foot depth interval samples are provided on the enclosed DVD. Table 4 lists the detected soil concentrations in these samples that exceed the Table 2 comparison values. These exceedences are also plotted by location on Figure 4 for the South Area and Figure 5 for the North Area. The Work Plan specifies that where exceedences are indicated in soil samples from the 1 to 2 foot depth interval, then deeper soil samples will be collected to define the vertical extent, except that samples will not be collected from depths below: (1) the water table; or (2) the surface soil depth at the sample location as defined in 30 TAC 350.4(a)(88) (i.e., five feet). Accordingly, deeper soil samples are proposed at each of the locations listed in Table 4. Proposed sampling methods and analyses for these samples are described below.

PROPOSED PHASE 2 SOIL INVESTIGATION ACTIVITIES

Extent of Contamination Evaluation Samples

As noted previously, additional soil samples are proposed to evaluate the lateral or vertical extent of soil contamination at the following locations:

- Seven locations on the former commercial marina property (Lot 20) immediately west of the Site. These locations are labeled as L20SB01 through L20SB06 on Figure 3. The proposed depths and analytes for samples from these locations are listed in Table 5.
- Fifteen locations within the South Area of the Site. These locations are listed on Table 5 and are shown on Figure 4. Proposed depths and analytes for samples from these locations are also listed in Table 5.
- One location within the North Area of the Site (ND3SB04). This location is shown on Figure 5. The proposed sample depth and analytes are listed in Table 5.

At locations where samples are required from depths greater than 0.5 feet, soil borings will be advanced using auger or direct push methods and sampled continuously for lithologic description purposes. Sampling will be performed using hand sampling equipment (augers or trowels) at locations where a sample is only required from the 0 to 0.5 foot depth interval.

NE3MW05/NE3SB09 Area Samples

As previously discussed with you, three additional soil borings (SB-204, SB-205, and SB-206 as shown on Figure 6) are proposed in the vicinity of previous soil boring/monitoring well NE3MW05/NE3SB09 where subsurface debris (e.g., a section of large rope) was observed in the auger cuttings from the boring for this well.

These three additional borings are intended to further evaluate the presence and/or composition of debris in this area. Each boring will be advanced to approximately 1 foot below visible debris (assuming no refusal). Soil borings will be advanced using auger or direct push methods and sampled continuously for lithologic description purposes. If debris is encountered in a boring, soil samples for laboratory analysis will be collected (to the extent possible based on soil and debris type and debris thickness and depth) from 1 foot depth intervals immediately above the debris, immediately below the debris, and within the approximate center of the debris zone. If debris is not encountered in a boring, the boring will be advanced to a depth of 6 feet. Soil samples will be collected for laboratory analysis from the 1 to 2 foot, 3 to 4 foot, and 5 to 6 foot depth intervals from those borings (if any) in which debris is not observed. If refusal is encountered in a boring, a soil sample for laboratory analysis will be collected from the depth interval immediately above the refusal point and an additional boring will be advanced approximately five feet from the original boring. A soil sample will be collected for laboratory analysis from this additional boring at the depth interval corresponding to where refusal was encountered in the previous boring. Soils samples will not be collected for laboratory analysis from depth intervals where saturated conditions are observed. Laboratory analyses will include the full suite of soil analytes specified in Table B-1 of the Field Sampling Plan (VOCs, SVOCs, pesticides, metals, and PCBs).

Mr. Gary Miller
November 29, 2007
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Areas South of Fresh Water Pond

Three soil borings (SB-201, SB-202, and SB-203 on Figure 6) are also proposed further to the east (south of the Fresh Water Pond) at locations where scrap metal was observed at the ground surface. Soil borings at these locations will be advanced to a depth of two feet. Soil samples will be collected for laboratory analysis from the 0 to 0.5 foot and 1.5 to 2.0 foot depth intervals from those borings. Laboratory analyses will include the full suite of soil analytes specified in Table B-1 of the Field Sampling Plan (VOCs, SVOCs, pesticides, metals, and PCBs) except that VOC analyses are not proposed for the 0 to 0.5 foot depth interval.

Thank you for the opportunity to submit this information. Based on your approval of the previous version of this letter submitted on September 11, 2007, we have performed the sampling activities described herein and have initiated the indicated sample analyses.

Sincerely,

PASTOR, BEHLING & WHEELER, LLC



Eric F. Pastor, P.E.
Principal Engineer

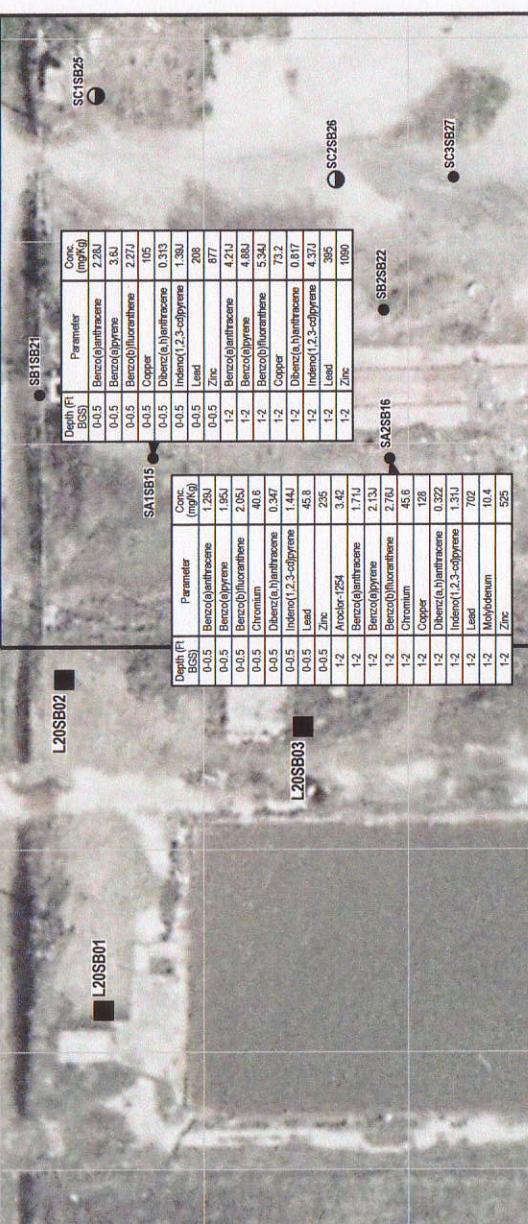
cc: Ms. Luda Voskov - Texas Commission on Environmental Quality
Mr. Robert L. Iuliucci - Sequa Corporation
Mr. Brent Murray – Environmental Quality, Inc.
Mr. Rob Rouse - The Dow Chemical Company
Mr. Donnie Belote – The Dow Chemical Company
Mr. Allen Daniels - LDL Coastal Limited, LP
Mr. F. William Mahley - Strasburger & Price, LLP
Mr. James C. Morriss III - Thompson & Knight, LLP
Ms. Elizabeth Webb - Thompson & Knight, LLP

FIGURES





Marlin Avenue



Intracoastal Waterway

EXPLANATION

- Gulfco Marine Maintenance Site Boundary (approximate)
- Judgmental Soil Sample (0-2 ft)
- Random Systematic Soil Sample (0-2 ft)
- Monitoring Well / Judgmental Soil Sample (0-2 ft)
- Proposed Soil Sample Location

Note:
Data Qualifiers:
J = Estimated value
J- = Estimated value, biased low
J+ = Estimated value, biased high

INTRACOASTAL Waterway

GULFCO MARINE MAINTENANCE

FREESTPORT, BRAZORIA COUNTY, TEXAS

Figure 3

DETECTED SOIL CONCENTRATIONS EXCEEDING PSVS AND BACKGROUND WEST SIDE OF SOUTH AREA

PROJECT:	1352	BY:	ZKG	REVISIONS
DATE:	OCT. 2007	CHECKED:	EFP	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

Approx. Scale in Feet
0 30 60

Sources of photo: H-GAC, Texas aerial photograph, 2004.







TABLES

TABLE 1 - WESTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 16 of RI/FS Work Plan ⁽²⁾							PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	T ^{tot} Soil _{Comb} ⁽⁴⁾	GWSoil _{Class 3} ⁽⁵⁾	AirSoil _{Inh-V} ⁽⁶⁾	AirGWSoil _{Inh-V} ⁽⁷⁾	EPA Ecological Soil Screening Level ⁽⁸⁾	TCEQ Ecological Benchmark ⁽⁹⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
METALS											
Aluminum	7.60E+04	6.5E+03 ⁽¹²⁾	8.6E+05 ⁽¹³⁾	---	---	---	5.00E+01	+ 5.00E+01	3.00E+04	---	3.00E+04
Antimony	3.10E+01	1.50E+01	2.71E+02	---	---	2.70E-01 ***	5.00E+00	+ 2.70E-01	1.00E+00	---	1.00E+00
Arsenic	3.90E-01	2.42E+01	2.51E+02	---	---	1.80E+01	3.70E+01	+ 3.90E-01	5.90E+00	8.66E+00	8.66E+00
Barium	5.50E+03	7.84E+03 ⁽¹²⁾	2.22E+04	---	---	3.30E+02 *	5.00E+02	+ 3.30E+02	3.00E+02	4.62E+02	4.62E+02
Beryllium	1.50E+02	3.76E+01	9.24E+01	---	---	2.10E+01 ***	1.00E+01	+ 1.00E+01	1.50E+00	---	1.00E+01
Boron	1.60E+04	1.60E+04	---	---	---	---	5.00E-01	+ 5.00E-01	3.00E+01	---	3.00E+01
Cadmium	3.90E+01	5.17E+01	7.55E+01	---	---	3.60E-01 ***	2.90E+01	+ 3.60E-01	---	---	3.60E-01
Chromium	---	2.30E+04	1.20E+05	---	---	---	4.00E-01	4.00E-01	3.00E+01	2.40E+01	3.00E+01
Chromium (VI)	3.00E+01	1.22E+02	1.41E+03	---	---	8.10E+01 ***	---	3.00E+01	---	---	3.00E+01
Cobalt	9.00E+02	1.21E+03 ⁽¹²⁾	2.20E+04	---	---	1.30E+01	2.00E+01	+ 1.30E+01	7.00E+00	---	1.30E+01
Copper	2.90E+03	5.48E+02	5.21E+04	---	---	---	6.10E+01	6.10E+01	1.50E+01	2.36E+01	6.10E+01
Iron	5.30E+04 ⁽¹³⁾	---	---	---	---	---	---	0.00E+00	1.50E+04	---	5.30E+04
Lead	4.00E+02	5.00E+02	1.51E+02	---	---	1.10E+01 **	5.00E+01	+ 1.10E+01	1.50E+01	1.79E+01	1.79E+01
Lithium	1.60E+03	1.26E+03	---	---	---	---	2.00E+00	+ 2.00E+00	---	3.62E+01	3.62E+01
Manganese	3.20E+03	3.41E+03	5.77E+04	---	---	---	5.00E+02	+ 5.00E+02	3.00E+02	6.50E+02	6.50E+02
Mercury	2.30E+01	2.10E+00	3.90E-01	2.40E+00	1.80E+00	---	1.00E-01	1.00E-01	4.00E-02	3.50E-02	1.00E-01
Molybdenum	3.90E+02	1.56E+02	2.46E+03	---	---	---	2.00E+00	+ 2.00E+00	---	7.40E-01	2.00E+00
Nickel	1.60E+03	8.32E+02	7.87E+03	---	---	---	3.00E+01	+ 3.00E+01	1.00E+01	---	3.00E+01
Selenium	3.90E+02	3.08E+02	1.15E+02	---	---	---	1.00E+00	+ 1.00E+00	3.00E-01	---	1.00E+00
Silver	3.90E+02	9.48E+01	2.39E+01	---	---	---	2.00E+00	+ 2.00E+00	---	---	2.00E+00
Strontium	4.70E+04	4.41E+04	3.07E+04	---	---	---	---	3.07E+04	1.00E+02	---	3.07E+04
Thallium	---	6.30E+00	8.70E+01	---	---	---	1.00E+00	+ 1.00E+00	9.30E+00	---	9.30E+00
Tin	---	3.53E+04	1.00E+06	---	---	---	5.00E+01	+ 5.00E+01	9.00E-01	---	5.00E+01
Titanium	---	1.00E+06	---	---	---	---	---	1.00E+06	2.00E+03	---	1.00E+06
Vanadium	7.80E+01	2.91E+02	1.71E+05	---	---	7.80E+00 **	2.00E+00	+ 2.00E+00	5.00E+01	---	5.00E+01
Zinc	2.30E+04	9.92E+03	1.18E+05	---	---	---	1.20E+02	1.20E+02	3.00E+01	1.27E+02	1.27E+02
PESTICIDES											
4,4'-DDD	2.40E+00	1.42E+01	6.48E+02	---	---	---	---	---	2.40E+00	---	2.40E+00
4,4'-DDE	1.70E+00	1.02E+01	5.89E+02	---	---	---	---	---	1.70E+00	---	1.70E+00
4,4'-DDT	1.70E+00	5.39E+00	7.37E+02	6.24E+02	2.22E+05	---	---	---	1.70E+00	---	1.70E+00
Aldrin	2.90E-02	4.97E-02	5.14E+00	4.27E+00	5.47E+02	---	---	---	2.90E-02	---	2.90E-02
alpha-BHC	9.00E-02	2.51E-01	3.96E-01	7.16E+00	5.44E+02	---	---	---	9.00E-02	---	9.00E-02
beta-BHC	3.20E-01	1.28E+01	3.69E+04	2.11E+03	1.00E+06	---	---	---	3.20E-01	---	3.20E-01
alpha-Chlordane	---	9.17E-01	1.45E+00	3.69E+01	4.24E+03	---	---	---	9.17E-01	---	9.17E-01
delta-BHC	---	2.85E+00	8.68E+00	5.22E+01	8.03E+03	---	---	---	2.85E+00	---	2.85E+00
Dieldrin	3.00E-02	1.45E-01	2.44E+00	1.63E+01	7.04E+03	3.20E-05 ***	---	---	3.20E-05	---	3.20E-05
Endosulfan I	---	4.65E+01	1.54E+03	9.59E+01	3.70E+04	---	---	---	4.65E+01	---	4.65E+01
Endosulfan II	---	2.72E+02	4.62E+03	---	---	---	---	---	2.72E+02	---	2.72E+02
Endosulfan sulfate	---	3.85E+02	2.33E+05	---	---	---	---	---	3.85E+02	---	3.85E+02

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Endrin	1.80E+01	8.69E+00	3.75E+01	2.43E+02	7.92E+04	---	---	8.69E+00	---	---	8.69E+00
Endrin aldehyde	---	1.94E+01	3.14E+04	---	---	---	---	1.94E+01	---	---	1.94E+01
Endrin ketone	---	1.86E+01	2.55E+03	9.73E+02	1.00E+06	---	---	1.86E+01	---	---	1.86E+01
gamma-BHC (Lindane)	4.40E-01	1.11E+00	4.58E-01	2.99E+02	2.46E+04	---	---	4.40E-01	---	---	4.40E-01
gamma-Chlordane	---	7.30E+00	2.10E+03	5.00E+02	1.60E+05	---	---	7.30E+00	---	---	7.30E+00
Heptachlor	1.10E-01	1.27E-01	9.44E+00	4.69E+00	1.92E+02	---	---	1.10E-01	---	---	1.10E-01
Heptachlor epoxide	5.30E-02	2.37E-01	2.91E+00	1.22E+01	2.24E+03	---	---	5.30E-02	---	---	5.30E-02
Methoxychlor	3.10E+02	2.69E+02	6.21E+03	1.60E+04	1.00E+06	---	---	2.69E+02	---	---	2.69E+02
Toxaphene	4.40E-01	1.24E+00	5.75E+02	4.91E+02	4.43E+05	---	---	4.40E-01	---	---	4.40E-01
PCBs	2.22E-01	1.10E+00	5.30E+02	2.80E+01	4.00E+03	---	---	2.22E-01	---	---	2.22E-01
Aroclor-1016	3.93E+00	---	---	---	---	---	---	3.93E+00	---	---	3.93E+00
Aroclor-1221	2.22E-01	---	---	---	---	---	---	2.22E-01	---	---	2.22E-01
Aroclor-1232	2.22E-01	---	---	---	---	---	---	2.22E-01	---	---	2.22E-01
Aroclor-1242	2.22E-01	---	---	---	---	---	---	2.22E-01	---	---	2.22E-01
Aroclor-1248	2.22E-01	---	---	---	---	---	---	2.22E-01	---	---	2.22E-01
Aroclor-1254	2.22E-01	---	---	---	---	---	---	2.22E-01	---	---	2.22E-01
Aroclor-1260	2.22E-01	---	---	---	---	---	---	2.22E-01	---	---	2.22E-01
VOCs											
1,1,1,2-Tetrachloroethane	3.00E+00	3.89E+01	7.08E+01	4.66E+01	2.89E+02	---	---	3.00E+00	---	---	3.00E+00
1,1,1-Trichloroethane	1.40E+03	8.43E+03 ⁽¹²⁾	8.10E+01	1.74E+04 ⁽¹²⁾	9.15E+03 ⁽¹²⁾	---	---	8.10E+01	---	---	8.10E+01
1,1,2,2-Tetrachloroethane	3.80E-01	3.99E+00	1.15E+00	4.59E+00	1.44E+01	---	---	3.80E-01	---	---	3.80E-01
1,1,2-Trichloroethane	8.40E-01	1.04E+01	1.00E+00	1.15E+01	2.08E+01	---	---	8.40E-01	---	---	8.40E-01
1,1-Dichloroethane	5.90E+02	6.50E+02	4.62E+01	3.16E+03	1.75E+03	---	---	4.62E+01	---	---	4.62E+01
1,1-Dichloroethene	2.80E+02	1.14E+03 ⁽¹²⁾	2.50E+00	1.58E+03	4.53E+02	---	---	2.50E+00	---	---	2.50E+00
1,1-Dichloropropene	---	2.62E+01	6.72E+00	4.61E+01	1.83E+01	---	---	6.72E+00	---	---	6.72E+00
1,2,3-Trichloropropane	1.40E-03	8.68E-01	1.14E-01	1.43E+03	7.32E+03	---	---	1.40E-03	---	---	1.40E-03
1,2,4-Trichlorobenzene	6.80E+01	1.26E+02 ⁽¹²⁾	2.40E+02	1.55E+02 ⁽¹²⁾	1.38E+03 ⁽¹²⁾	---	2.00E+01	2.00E+01	---	---	2.00E+01
1,2,4-Trimethylbenzene	5.20E+01	6.79E+01	2.43E+03	6.90E+01	4.18E+02	---	---	5.20E+01	---	---	5.20E+01
1,2-Dibromo-3-chloropropane	4.60E-01	3.18E+00 ⁽¹²⁾	8.73E-02	4.17E+00	1.79E+01	---	---	8.73E-02	---	---	8.73E-02
1,2-Dibromoethane	2.80E-02	1.60E+00	1.03E-02	3.40E+00	1.02E+01	---	---	1.03E-02	---	---	1.03E-02
1,2-Dichlorobenzene	2.80E+02	3.89E+02	8.94E+02	4.10E+02	2.23E+03	---	---	2.80E+02	---	---	2.80E+02
1,2-Dichloroethane	3.50E-01	6.41E+00	6.86E-01	7.09E+00	5.85E+00	---	---	3.50E-01	---	---	3.50E-01
1,2-Dichloropropene	3.50E-01	3.14E+01	1.14E+00	3.16E+01	3.43E+01	---	7.00E+02	3.50E-01	---	---	3.50E-01
1,3,5-Trimethylbenzene	2.10E+01	5.87E+01	2.66E+03	5.95E+01	3.54E+02	---	---	2.10E+01	---	---	2.10E+01
1,3-Dichlorobenzene	9.30E+01	6.16E+01	3.37E+02	6.32E+01	1.13E+02	---	---	6.16E+01	---	---	6.16E+01
1,3-Dichloropropane	---	2.62E+01	3.22E+00	4.61E+01	1.16E+02	---	---	3.22E+00	---	---	3.22E+00
1,4-Dichlorobenzene	3.20E+00	2.53E+02	1.05E+02	9.15E+03	4.73E+04	---	2.00E+01	3.20E+00	---	---	3.20E+00
2,2-Dichloropropane	---	3.14E+01	6.04E+00	3.16E+01	3.30E+01	---	---	6.04E+00	---	---	6.04E+00
2-Butanone	3.20E+04	2.68E+04	1.46E+03	5.89E+04	3.51E+05	---	---	1.46E+03	---	---	1.46E+03
2-Chloroethylvinyl ether	---	2.33E+00	1.44E-01	2.37E+00	4.41E+00	---	---	1.44E-01	---	---	1.44E-01

TABLE 1 - WESTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 16 of RI/FS Work Plan ⁽²⁾							PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	TotSoil _{Comb} ⁽⁴⁾	GWSoil _{Class 3} ⁽⁵⁾	AirSoil _{Inh-V} ⁽⁶⁾	AirGWSoil _{Inh-V} ⁽⁷⁾	EPA Ecological Soil Screening Level ⁽⁸⁾	TCEQ Ecological Benchmark ⁽⁹⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
2-Chlorotoluene	1.60E+02	8.29E+02	4.53E+02	2.20E+03	9.20E+03	---	---	1.60E+02	---	---	1.60E+02
2-Hexanone	---	5.60E+01	1.94E+02	5.66E+01	2.62E+02	---	---	5.60E+01	---	---	5.60E+01
4-Chlorotoluene	---	2.47E+00	5.40E+02	2.47E+00	1.13E+01	---	---	2.47E+00	---	---	2.47E+00
4-Isopropyltoluene	---	2.47E+03	1.16E+04	3.53E+03	2.80E+04	---	---	2.47E+03	---	---	2.47E+03
4-Methyl-2-pentanone	5.80E+03	5.37E+03	2.47E+02	2.98E+04	1.10E+05	---	---	2.47E+02	---	---	2.47E+02
Acetone	7.00E+04	5.42E+03	2.14E+03	5.85E+03	3.18E+04	---	---	2.14E+03	---	---	2.14E+03
Acrolein	1.00E-01	5.72E-01	1.18E+00	5.80E-01	8.78E+00	---	---	1.00E-01	---	---	1.00E-01
Acrylonitrile	2.10E-01	2.18E+00	1.67E-01	2.71E+00	7.35E+00	---	---	1.67E-01	---	---	1.67E-01
Benzene	6.60E-01	1.95E+01	1.28E+00	2.36E+01	1.68E+01	---	---	6.60E-01	---	---	6.60E-01
Bromobenzene	7.30E+01	9.40E+01 ⁽¹²⁾	2.89E+02	9.97E+01 ⁽¹²⁾	3.46E+02 ⁽¹²⁾	---	---	7.30E+01	---	---	7.30E+01
Bromodichlormethane	1.00E+00	9.79E+01	3.27E+00	---	---	---	---	1.00E+00	---	---	1.00E+00
Bromoform	6.20E+01	2.76E+02	3.16E+01	4.31E+02	1.82E+03	---	---	3.16E+01	---	---	3.16E+01
Bromomethane	3.90E+00	2.94E+01	6.54E+00	3.95E+01	1.14E+01	---	---	3.90E+00	---	---	3.90E+00
Butanol	6.10E+03	1.77E+03	2.63E+02	2.27E+03	2.75E+04	---	---	2.63E+02	---	---	2.63E+02
Carbon disulfide	7.20E+02	3.30E+03	6.79E+02	5.53E+03	1.75E+03	---	---	6.79E+02	---	---	6.79E+02
Carbon tetrachloride	2.40E-01	9.72E+00	3.09E+00	1.23E+01	6.31E+00	---	---	2.40E-01	---	---	2.40E-01
Chlorobenzene	3.20E+02	3.18E+02 ⁽¹²⁾	5.46E+01	3.95E+02 ⁽¹²⁾	8.18E+02 ⁽¹²⁾	---	4.00E+01	4.00E+01	---	---	4.00E+01
Chloroethane	3.00E+00	2.32E+04	1.55E+03	7.90E+04	2.37E+04	---	---	3.00E+00	---	---	3.00E+00
Chloroform	2.50E-01	8.01E+00	5.10E+01	8.01E+00	5.37E+00	---	---	2.50E-01	---	---	2.50E-01
Chloromethane	1.30E+00	8.40E+01	2.03E+01	1.02E+02	1.35E+01	---	---	1.30E+00	---	---	1.30E+00
cis-1,2-Dichloroethene	4.30E+01	7.24E+02	1.24E+01	6.26E+03	3.73E+03	---	---	1.24E+01	---	---	1.24E+01
cis-1,3-Dichloropropene	---	7.09E+00	3.32E-01	5.29E+01	5.87E+01	---	---	3.32E-01	---	---	3.32E-01
Dibromochloromethane	1.00E+00	7.23E+01	2.46E+00	---	---	---	---	1.00E+00	---	---	1.00E+00
Dibromomethane	1.40E+02	1.35E+02	5.65E+01	1.39E+02	4.72E+02	---	---	5.65E+01	---	---	5.65E+01
Dichlorodifluoromethane	9.40E+01	1.15E+04	1.20E+04	3.91E+04	9.42E+03	---	---	9.40E+01	---	---	9.40E+01
Ethylbenzene	2.30E+02	4.02E+03	3.82E+02	7.90E+03	1.10E+04	---	---	2.30E+02	---	---	2.30E+02
Hexachlorobutadiene	6.20E+00	1.20E+01	6.87E+01	1.50E+01	1.61E+02	---	---	6.20E+00	---	---	6.20E+00
Isopropylbenzene (Cumene)	3.70E+02	3.01E+03	1.74E+04	4.76E+03	4.04E+04	---	---	3.70E+02	---	---	3.70E+02
Methyl acetate	2.20E+04	4.48E+03	2.44E+03	4.74E+03	1.72E+04	---	---	2.44E+03	---	---	2.44E+03
Methyl iodide	---	5.19E+01	5.68E+00	9.47E+01	3.64E+01	---	---	5.68E+00	---	---	5.68E+00
Methylcyclohexane	1.40E+02	2.24E+04	7.78E+05	2.37E+04	1.17E+04	---	---	1.40E+02	---	---	1.40E+02
Methylene chloride	8.90E+00	2.64E+02	6.54E-01	3.92E+02	2.15E+02	---	---	6.54E-01	---	---	6.54E-01
Naphthalene	1.20E+02	1.24E+02	1.56E+03	1.38E+02	1.31E+03	---	---	1.20E+02	---	---	1.20E+02
n-Butylbenzene	1.40E+02	1.49E+03	6.07E+03	3.39E+03	2.91E+04	---	---	1.40E+02	---	---	1.40E+02
n-Propylbenzene	1.40E+02	1.63E+03	2.24E+03	3.25E+03	1.79E+04	---	---	1.40E+02	---	---	1.40E+02
o-Xylene	2.80E+02	2.17E+04	3.54E+03	2.50E+04	2.47E+05	---	---	2.80E+02	---	---	2.80E+02
sec-Butylbenzene	1.10E+02	1.55E+03	4.24E+03	2.95E+03	2.18E+04	---	---	1.10E+02	---	---	1.10E+02
Styrene	1.70E+03	7.04E+03	1.63E+02	1.23E+04	6.80E+04	---	3.00E+02 +	1.63E+02	---	---	1.63E+02
tert-Butyl methyl ether (MTBE)	1.70E+01	5.86E+02	3.11E+01	7.09E+02	6.64E+02	---	---	1.70E+01	---	---	1.70E+01
tert-Butylbenzene	1.30E+02	1.40E+03	5.00E+03	2.44E+03	1.64E+04	---	---	1.30E+02	---	---	1.30E+02
Tetrachloroethene	5.50E-01	8.54E+01	2.51E+00	3.18E+02	2.12E+02	---	---	5.50E-01	---	---	5.50E-01

TABLE 1 - WESTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 16 of RI/FS Work Plan ⁽²⁾							PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	Tot _{Soil} Comb ⁽⁴⁾	G _W Soil Class ⁽⁵⁾	Air _{Soil} Inh-V ⁽⁶⁾	Air _{GW} Soil _{Inh-V} ⁽⁷⁾	EPA Ecological Soil Screening Level ⁽⁸⁾	TCEQ Ecological Benchmark ⁽⁹⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
Toluene	5.20E+02	5.62E+03 ⁽¹²⁾	4.11E+02	3.95E+04 ⁽¹²⁾	4.12E+04 ⁽¹²⁾	---	2.00E+02	+ 2.00E+02	---	---	2.00E+02
trans-1,2-Dichloroethene	6.30E+01	1.30E+03	2.45E+01	6.26E+03	3.22E+03	---	---	2.45E+01	---	---	2.45E+01
trans-1,3-Dichloropropene	---	2.62E+01	1.79E+00	4.61E+01	4.82E+01	---	---	1.79E+00	---	---	1.79E+00
trans-1,4-Dichloro-2-butene	---	1.70E-01	---	1.70E-01	6.93E-01	---	---	1.70E-01	---	---	1.70E-01
Trichloroethene	4.30E-02	9.06E+01	1.68E+00	1.08E+02	7.06E+01	---	---	4.30E-02	---	---	4.30E-02
Trichlorofluoromethane	3.90E+02	1.16E+04	6.40E+03	2.21E+04	4.60E+03	---	---	3.90E+02	---	---	3.90E+02
Trichlorotrifluoroethane	5.60E+03	2.16E+05	1.00E+06	2.37E+05	6.46E+04	---	---	5.60E+03	---	---	5.60E+03
Vinyl acetate	4.30E+02	1.55E+03	2.67E+03	1.58E+03	2.00E+03	---	---	4.30E+02	---	---	4.30E+02
Vinyl chloride	4.30E-02	3.39E+00	1.11E+00	2.09E+01	2.62E+00	---	---	4.30E-02	---	---	4.30E-02
Xylene (total)	2.10E+02	7.53E+02	6.13E+03	7.90E+02	1.33E+03	---	---	2.10E+02	---	---	2.10E+02
SVOCs											
1,2-Diphenylhydrazine/Azobenzen	6.10E-01	5.43E+00	1.62E+00	7.24E+01	6.96E+03	---	---	6.10E-01	---	---	6.10E-01
2,4,5-Trichlorophenol	6.10E+03	4.14E+03	1.69E+03	1.09E+04	4.07E+05	---	4.00E+00	+ 4.00E+00	---	---	4.00E+00
2,4,6-Trichlorophenol	4.40E+01	3.00E+02	2.97E+01	1.01E+03	2.29E+04	---	1.00E+01	1.00E+01	---	---	1.00E+01
2,4-Dichlorophenol	1.80E+02	1.94E+02	1.76E+01	6.83E+03	1.68E+05	---	---	1.76E+01	---	---	1.76E+01
2,4-Dimethylphenol	1.20E+03	8.80E+02	1.62E+02	2.60E+03	6.99E+04	---	---	1.62E+02	---	---	1.62E+02
2,4-Dinitrophenol	1.20E+02	1.33E+02	4.68E+00	---	---	---	2.00E+01	+ 4.68E+00	---	---	4.68E+00
2,4-Dinitrotoluene	1.20E+02	6.91E+00	2.66E-01	1.50E+01	3.14E+02	---	---	2.66E-01	---	---	2.66E-01
2,6-Dinitrotoluene	6.10E+01	6.91E+00	2.40E-01	2.21E+01	7.28E+02	---	---	2.40E-01	---	---	2.40E-01
2-Chloronaphthalene	3.90E+03	5.04E+03	3.35E+04	---	---	---	---	3.90E+03	---	---	3.90E+03
2-Chlorophenol	6.40E+01	3.64E+02	8.16E+01	3.24E+03	5.31E+04	---	---	6.40E+01	---	---	6.40E+01
2-Methylnaphthalene	---	2.52E+02	8.53E+02	---	---	---	---	2.52E+02	---	---	2.52E+02
2-Nitroaniline	1.80E+02	1.15E+01 ⁽¹²⁾	1.10E+01 ⁽¹²⁾	1.22E+01 ⁽¹²⁾	3.86E+02 ⁽¹²⁾	---	---	1.80E+02	---	---	1.10E+01
2-Nitrophenol	---	1.01E+02	6.73E+00	4.13E+02	1.19E+04	---	---	6.73E+00	---	---	6.73E+00
3,3'-Dichlorobenzidine	1.10E+00	1.04E+01	3.13E+00	---	---	---	---	1.10E+00	---	---	1.10E+00
3-Nitroaniline	---	1.91E+01	1.28E+00	4.61E+02	1.61E+04	---	---	1.28E+00	---	---	1.28E+00
4,6-Dinitro-2-methylphenol	---	2.05E+01	4.69E+00	2.42E+01	1.05E+03	---	---	4.69E+00	---	---	4.69E+00
4-Bromophenyl phenyl ether	---	2.68E-01	1.77E+01	5.01E+00	5.95E+02	---	---	2.68E-01	---	---	2.68E-01
4-Chloro-3-methylphenol	---	3.27E+02	2.26E+02	1.76E+04	1.00E+06	---	---	2.26E+02	---	---	2.26E+02
4-Chloroaniline	2.40E+02	1.96E+02	2.23E+01	7.38E+02	2.01E+04	---	---	2.23E+01	---	---	2.23E+01
4-Chlorophenyl phenyl ether	---	1.54E-01	1.60E+00	1.28E+00	4.19E+01	---	---	1.54E-01	---	---	1.54E-01
4-Nitroaniline	---	2.68E+01 ⁽¹²⁾	5.14E+00 ⁽¹²⁾	3.10E+01 ⁽¹²⁾	1.10E+03 ⁽¹²⁾	---	---	0.00E+00	---	---	5.14E+00
4-Nitrophenol	4.90E+02	5.12E+01	4.99E+00	8.31E+01	3.15E+03	---	7.00E+00	4.99E+00	---	---	4.99E+00
Acenaphthene	3.70E+03	2.97E+03	1.18E+04	---	---	---	2.00E+01	+ 2.00E+01	---	---	2.00E+01
Acenaphthylene	---	3.78E+03	2.04E+04	---	---	---	---	3.78E+03	---	---	3.78E+03
Acetophenone	1.70E+03	1.81E+03	4.12E+02	2.48E+03	2.95E+04	---	---	4.12E+02	---	---	4.12E+02
Aniline	8.50E+01	5.89E+01	1.83E+01	6.74E+01	1.64E+03	---	---	1.83E+01	---	---	1.83E+01
Anthracene	2.20E+04	1.77E+04	3.44E+05	---	---	---	---	1.77E+04	---	---	1.77E+04
Atrazine (Aatrex)	2.20E+00	2.12E+01	1.25E+00	1.74E+03	9.85E+04	---	---	1.25E+00	---	---	1.25E+00
Benzaldehyde	6.10E+03	2.40E+02	5.25E+02	2.47E+02	1.44E+03	---	---	2.40E+02	---	---	2.40E+02
Benzidine	2.10E-03	1.25E-02	5.46E-04	3.24E-02	1.15E+00	---	---	5.46E-04	---	---	5.46E-04

TABLE 1 - WESTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 16 of RI/FS Work Plan ⁽²⁾							PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	Tot Soil Comb. ⁽⁴⁾	GW Soil Class 3 ⁽⁵⁾	Air Soil Inh-V ⁽⁶⁾	Air GW Soil Inh-V ⁽⁷⁾	EPA Ecological Soil Screening Level ⁽⁸⁾	TCEQ Ecological Benchmark ⁽⁹⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
Benzo(a)anthracene	6.20E-01	5.65E+00	8.87E+02	1.93E+03	1.00E+06	---	---	6.20E-01	---	---	6.20E-01
Benzo(a)pyrene	6.20E-02	5.64E-01	3.82E+02	4.36E+02	9.58E+05	---	---	6.20E-02	---	---	6.20E-02
Benzo(b)fluoranthene	6.20E-01	5.71E+00	3.01E+03	3.16E+03	1.00E+06	---	---	6.20E-01	---	---	6.20E-01
Benzo(g,h,i)perylene	---	1.78E+03	1.00E+06	---	---	---	---	1.78E+03	---	---	1.78E+03
Benzo(k)fluoranthene	6.20E+00	5.72E+01	3.08E+04	7.83E+04	1.00E+06	---	---	6.20E+00	---	---	6.20E+00
Benzoic acid	1.00E+05	3.54E+02	9.46E+03	3.55E+02	1.31E+04	---	---	3.54E+02	---	---	3.54E+02
Benzyl alcohol	1.80E+04	3.74E+03	8.79E+02	4.60E+03	1.41E+05	---	---	8.79E+02	---	---	8.79E+02
Biphenyl	3.00E+03	1.34E+02	1.27E+04	1.39E+02	2.72E+03	---	6.00E+01 +	6.00E+01	---	---	6.00E+01
Bis(2-Chloroethoxy)methane	---	2.46E+00	5.88E-01	5.81E+00	7.37E+01	---	---	5.88E-01	---	---	5.88E-01
Bis(2-Chloroethyl)ether	2.10E-01	1.38E+00	1.05E-01	1.84E+00	1.53E+01	---	---	1.05E-01	---	---	1.05E-01
Bis(2-Chloroisopropyl)ether	---	4.12E+01	9.50E+00	1.06E+02	8.20E+02	---	---	9.50E+00	---	---	9.50E+00
Bis(2-Ethylhexyl)phthalate	3.50E+01	4.32E+01	8.18E+03	---	---	---	---	3.50E+01	---	---	3.50E+01
Butyl benzyl phthalate	2.40E+02	5.72E+03	1.35E+05	1.28E+04	1.00E+06	---	---	2.40E+02	---	---	2.40E+02
Caprolactam	3.10E+04	1.67E+02	2.35E+03	1.68E+02	6.10E+03	---	---	1.67E+02	---	---	1.67E+02
Carbazole	2.40E+01	2.35E+02	2.28E+02	---	---	---	---	2.40E+01	---	---	2.40E+01
Chrysene	6.20E+01	5.60E+02	7.73E+04	3.04E+05	1.00E+06	---	---	6.20E+01	---	---	6.20E+01
Dibenz(a,h)anthracene	6.20E-02	5.49E-01	7.62E+02	1.01E+03	1.00E+06	---	---	6.20E-02	---	---	6.20E-02
Dibenzofuran	1.50E+02	2.66E+02	1.67E+03	---	---	---	---	1.50E+02	---	---	1.50E+02
Diethyl phthalate	4.90E+04	1.42E+03	7.79E+03	1.46E+03	7.00E+04	---	1.00E+02 +	1.00E+02	---	---	1.00E+02
Dimethyl phthalate	1.00E+05	6.59E+02	3.11E+03	6.68E+02	2.18E+04	---	2.00E+02	2.00E+02	---	---	2.00E+02
Di-n-butyl phthalate	6.10E+03	4.40E+03	1.66E+05	1.53E+04	1.00E+06	---	2.00E+02 +	2.00E+02	---	---	2.00E+02
Di-n-octyl phthalate	2.40E+03	2.55E+03 ⁽¹²⁾	1.00E+06	---	---	---	---	2.40E+03	---	---	2.40E+03
Fluoranthene	2.30E+03	2.32E+03	9.59E+04	---	---	---	---	2.30E+03	---	---	2.30E+03
Fluorene	2.60E+03	2.26E+03	1.49E+04	---	---	---	3.00E+01	3.00E+01	---	---	3.00E+01
Hexachlorobenzene	3.00E-01	1.02E+00	5.65E+01	9.80E+00	4.17E+02	---	---	3.00E-01	---	---	3.00E-01
Hexachlorocyclopentadiene	3.70E+02	7.16E+00	9.64E+02	7.29E+00	1.35E+02	---	1.00E+01 +	7.16E+00	---	---	7.16E+00
Hexachloroethane	3.50E+01	6.66E+01	9.18E+01	4.95E+02	6.93E+03	---	---	3.50E+01	---	---	3.50E+01
Indeno(1,2,3-cd)pyrene	6.20E-01	5.72E+00	8.67E+03	1.29E+04	1.00E+06	---	---	6.20E-01	---	---	6.20E-01
Isophorone	5.10E+02	1.25E+03	1.50E+02	1.38E+03	2.00E+04	---	---	1.50E+02	---	---	1.50E+02
Nitrobenzene	2.00E+01	2.99E+01	4.39E+00	2.90E+02	2.88E+03	---	4.00E+01	4.39E+00	---	---	4.39E+00
n-Nitrosodimethylamine	9.50E-03	5.46E-02	1.84E-03	1.01E-01	2.69E+00	---	---	1.84E-03	---	---	1.84E-03
n-Nitrosodi-n-propylamine	7.00E-02	4.00E-01	1.76E-02	---	---	---	---	1.76E-02	---	---	1.76E-02
n-Nitrosodiphenylamine	9.90E+01	5.71E+02	1.41E+02	---	---	---	2.00E+01	2.00E+01	---	---	2.00E+01
o-Cresol	3.10E+03	1.01E+03	3.56E+02	1.46E+03	3.77E+04	---	---	3.56E+02	---	---	3.56E+02
Pentachlorophenol	3.00E+00	2.42E+00	9.16E-01	2.33E+02	1.57E+04	1.80E-03 **	3.00E+00 +	1.80E-03	---	---	1.80E-03
Phenanthrene	---	1.71E+03	2.08E+04	---	---	---	---	1.71E+03	---	---	1.71E+03
Phenol	1.80E+04	1.59E+03	9.57E+02	1.72E+03	4.65E+04	---	3.00E+01	3.00E+01	---	---	3.00E+01
Pyrene	2.30E+03	1.70E+03	5.58E+04	---	---	---	---	1.70E+03	---	---	1.70E+03
Pyridine	6.10E+01	4.84E+01	3.45E+00	1.18E+02	4.08E+01	---	---	3.45E+00	---	---	3.45E+00

TABLE 1 - WESTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 16 of RI/FS Work Plan ⁽²⁾							PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	TotSoil _{Comb} ⁽⁴⁾	GWSoil _{Class 3} ⁽⁵⁾	AirSoil _{Inh-V} ⁽⁶⁾	AirGWSoil _{Inh-V} ⁽⁷⁾	EPA Ecological Soil Screening Level ⁽⁸⁾	TCEQ Ecological Benchmark ⁽⁹⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
Sulfate	---	---	---	---	---	---	---	NV	---	---	NV
Chloride	---	---	---	---	---	---	---	NV	---	---	NV

Notes:

1. All values in mg/kg.
2. Values from Table 16 of RI/FS Workplan unless indicated otherwise (updated to reflect changes in toxicity data from 2005 to 2007)
3. From EPA's "Region 6 Human Health Medium-Specific Screening Levels 2004-2005". Residential Value.
4. TotSoil_{Comb} PCL = TCEQ Protective Concentration Level for 30 acre source area Residential total soil combined pathway (includes inhalation; ingestion; dermal pathways).
5. GWSoil_{Class 3} PCL = TCEQ Protective Concentration Level for 30 acre source area Residential soil-to-groundwater leaching for Class 3 groundwater ingestion pathway.
6. AirSoil_{Inh-V} PCL = TCEQ Protective Concentration Level for 30 acre source area Residential soil-to-air pathway (inhalation of volatiles and particulates).
7. AirGWSoil_{Inh-V} PCL = TCEQ Protective Concentration Level for 30 acre source area Residential soil and groundwater-to-air pathway (inhalation of volatiles and particulates).
8. From EPA's "Ecological Soil Screening Level". Values indicated with "*" are based on soil Invertebrates. Values indicated with "****" are based on avian wildlife. Values indicated with "*****" are based on mammalian wildlife. All other values are based on plants.
9. From Table 3-4 of TCEQ "Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas". Values indicated with "+" are based on plant exposure. All other values are based on earthworm exposure.
10. NV = No Preliminary Screening Value.
10. From 30 TAC 350.51(m)
11. 95% UTL calculated from site-specific background samples.
12. Updated from Table 16 of RI/FS Workplan to reflect changes in toxicity data from 2005 to 2007 indicated in TCEQ PCL tables.
13. Updated from Table 16 of RI/FS Workplan to reflect revised reference dose for iron.

TABLE 2 - VERTICAL AND EASTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 15 of RI/FS Workplan ⁽²⁾					PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	TotSoil _{Comb} ⁽⁴⁾	GWSoil _{Class 3} ⁽⁵⁾	AirSoil _{Inh-V} ⁽⁶⁾	AirGWSoil _{Inh-V} ⁽⁷⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
METALS									
Aluminum	1.00E+05	6.7E+04 ⁽¹²⁾	1.00E+06	---	---	6.70E+04	3.00E+04	---	6.70E+04
Antimony	4.50E+02	3.06E+02	2.71E+02	---	---	2.71E+02	1.00E+00	---	2.71E+02
Arsenic	1.80E+00	1.96E+02	2.51E+02	---	---	1.80E+00	5.90E+00	8.66E+00	8.66E+00
Barium	7.90E+04	8.9E+04 ⁽¹²⁾	2.22E+04	---	---	2.22E+04	3.00E+02	4.62E+02	2.22E+04
Beryllium	2.20E+03	2.47E+02	9.24E+01	---	---	9.24E+01	1.50E+00	---	9.24E+01
Boron	1.00E+05	1.92E+05	---	---	---	1.00E+05	3.00E+01	---	1.00E+05
Cadmium	5.60E+02	8.52E+02	7.55E+01	---	---	7.55E+01	---	---	7.55E+01
Chromium	5.00E+02	5.71E+04	1.20E+05	---	---	5.00E+02	3.00E+01	2.40E+01	5.00E+02
Chromium (VI)	7.10E+01	1.01E+03	1.41E+03	---	---	7.10E+01	---	---	7.10E+01
Cobalt	2.10E+03	7.3E+03 ⁽¹²⁾	6.6E+04 ⁽¹²⁾	---	---	2.10E+03	7.00E+00	---	2.10E+03
Copper	4.20E+04	3.69E+04	5.21E+04	---	---	3.69E+04	1.50E+01	2.36E+01	3.69E+04
Iron	1.00E+05	---	---	---	---	1.00E+05	1.50E+04	---	1.00E+05
Lead	8.00E+02	1.60E+03	1.51E+02	---	---	1.51E+02	1.50E+01	1.79E+01	1.51E+02
Lithium	2.30E+04	1.95E+04	---	---	---	1.95E+04	---	3.62E+01	1.95E+04
Manganese	3.50E+04	2.41E+04	5.13E+05	---	---	2.41E+04	3.00E+02	6.50E+02	2.41E+04
Mercury	3.40E+02	3.26E+00	3.91E-01	3.32E+00	2.57E+00	3.91E-01	4.00E-02	3.50E-02	3.91E-01
Molybdenum	5.70E+03	4.51E+03	7.33E+03	---	---	4.51E+03	---	7.40E-01	4.51E+03
Nickel	2.30E+04	7.94E+03	2.35E+04	---	---	7.94E+03	1.00E+01	---	7.94E+03
Selenium	5.70E+03	4.70E+03	1.15E+02	---	---	1.15E+02	3.00E-01	---	1.15E+02
Silver	5.70E+03	1.71E+03	7.15E+01	---	---	7.15E+01	---	---	7.15E+01
Strontium	1.00E+05	4.91E+05	9.18E+04	---	---	9.18E+04	1.00E+02	---	9.18E+04
Thallium	---	7.80E+01	8.70E+01	---	---	7.80E+01	9.30E+00	---	7.80E+01
Tin	---	3.97E+05	1.00E+06	---	---	3.97E+05	9.00E-01	---	3.97E+05
Titanium	---	1.00E+06	---	---	---	1.00E+06	2.00E+03	---	1.00E+06
Vanadium	1.10E+03	2.29E+03	5.11E+05	---	---	1.10E+03	5.00E+01	---	1.10E+03
Zinc	1.00E+05	2.45E+05	3.52E+05	---	---	1.00E+05	3.00E+01	1.27E+02	1.00E+05
PESTICIDES									
4,4'-DDD	1.10E+01	1.04E+02	1.45E+03	---	---	1.10E+01	---	---	1.10E+01
4,4'-DDE	7.80E+00	7.32E+01	1.32E+03	---	---	7.80E+00	---	---	7.80E+00
4,4'-DDT	7.80E+00	6.84E+01	1.65E+03	1.05E+03	3.72E+05	7.80E+00	---	---	7.80E+00
Aldrin	1.10E-01	9.70E-01	1.15E+01	7.17E+00	9.19E+02	1.10E-01	---	---	1.10E-01
alpha-BHC	4.00E-01	2.88E+00	8.86E-01	1.20E+01	9.14E+02	4.00E-01	---	---	4.00E-01
alpha-Chlordane	---	5.37E+01	8.27E+04	3.55E+03	1.00E+06	5.37E+01	---	---	5.37E+01
beta-BHC	1.40E+00	1.09E+01	3.24E+00	6.20E+01	7.12E+03	1.40E+00	---	---	1.40E+00
delta-BHC	---	1.15E+01	1.94E+01	8.77E+01	1.35E+04	1.15E+01	---	---	1.15E+01
Dieldrin	1.20E-01	1.14E+00	5.47E+00	2.74E+01	1.18E+04	1.20E-01	---	---	1.20E-01
Endosulfan I	---	1.22E+02	4.60E+03	1.34E+02	5.18E+04	1.22E+02	---	---	1.22E+02
Endosulfan II	---	4.09E+03	1.38E+04	---	---	4.09E+03	---	---	4.09E+03

TABLE 2 - VERTICAL AND EASTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 15 of RI/FS Workplan ⁽²⁾					PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	Tot _{Soil} _{Comb} ⁽⁴⁾	GW _{Soil} _{Class 3} ⁽⁵⁾	Air _{Soil} _{Inh-V} ⁽⁶⁾	Air _{GW} _{Soil} _{Inh-V} ⁽⁷⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
Endosulfan sulfate	---	4.09E+03	6.96E+05	---	---	4.09E+03	---	---	4.09E+03
Endrin	2.10E+02	1.27E+02	3.75E+01	3.40E+02	1.11E+05	3.75E+01	---	---	3.75E+01
Endrin aldehyde	---	2.04E+02	9.36E+04	---	---	2.04E+02	---	---	2.04E+02
Endrin ketone	---	1.77E+02	7.61E+03	1.36E+03	1.00E+06	1.77E+02	---	---	1.77E+02
gamma-BHC (Lindane)	1.90E+00	1.83E+01	4.58E-01	4.18E+02	3.45E+04	4.58E-01	---	---	4.58E-01
gamma-Chlordane	---	5.10E+01	4.60E+03	8.40E+02	2.60E+05	5.10E+01	---	---	5.10E+01
Heptachlor	4.30E-01	2.76E+00	9.44E+00	7.88E+00	3.22E+02	4.30E-01	---	---	4.30E-01
Heptachlor epoxide	2.10E-01	1.90E+00	2.91E+00	2.05E+01	3.77E+03	2.10E-01	---	---	2.10E-01
Methoxychlor	3.40E+03	2.96E+03	6.21E+03	2.25E+04	1.00E+06	2.96E+03	---	---	2.96E+03
Toxaphene	1.70E+00	1.70E+01	5.75E+02	8.26E+02	7.45E+05	1.70E+00	---	---	1.70E+00
PCBs	---	7.10E+00	5.30E+02	4.70E+01	6.80E+03	7.10E+00	---	---	7.10E+00
Aroclor-1016	2.40E+01	---	---	---	---	2.40E+01	---	---	2.40E+01
Aroclor-1221	8.30E-01	---	---	---	---	8.30E-01	---	---	8.30E-01
Aroclor-1232	8.30E-01	---	---	---	---	8.30E-01	---	---	8.30E-01
Aroclor-1242	8.30E-01	---	---	---	---	8.30E-01	---	---	8.30E-01
Aroclor-1248	8.30E-01	---	---	---	---	8.30E-01	---	---	8.30E-01
Aroclor-1254	8.30E-01	---	---	---	---	8.30E-01	---	---	8.30E-01
Aroclor-1260	8.30E-01	---	---	---	---	8.30E-01	---	---	8.30E-01
VOCs									
1,1,1,2-Tetrachloroethane	7.60E+00	7.3E+00 ⁽¹²⁾	2.6E+00 ⁽¹²⁾	7.7E+00 ⁽¹²⁾	2.4E+01 ⁽¹²⁾	2.60E+00	---	---	2.60E+00
1,1,1-Trichloroethane	1.40E+03	2.2E+04 ⁽¹²⁾	8.10E+01	2.4E+04 ⁽¹²⁾	1.3E+04 ⁽¹²⁾	8.10E+01	---	---	8.10E+01
1,1,2,2-Tetrachloroethane	9.70E-01	7.32E+00	2.59E+00	7.72E+00	2.42E+01	9.70E-01	---	---	9.70E-01
1,1,2-Trichloroethane	2.10E+00	1.86E+01	1.00E+00	1.93E+01	3.49E+01	1.00E+00	---	---	1.00E+00
1,1-Dichloroethane	2.30E+03	3.1E+03 ⁽¹²⁾	1.4E+02 ⁽¹²⁾	4.42E+03	2.46E+03	1.40E+02	---	---	1.40E+02
1,1-Dichloroethene	4.70E+02	2.12E+03	2.50E+00	2.21E+03	6.35E+02	2.50E+00	---	---	2.50E+00
1,1-Dichloropropene	---	6.09E+01	1.51E+01	7.74E+01	3.08E+01	1.51E+01	---	---	1.51E+01
1,2,3-Trichloropropane	3.40E-03	4.09E+00	2.56E-01	2.01E+03	1.02E+04	3.40E-03	---	---	3.40E-03
1,2,4-Trichlorobenzene	2.60E+02	2.1E+02 ⁽¹²⁾	2.40E+02	2.2E+02 ⁽¹²⁾	1.9E+03 ⁽¹²⁾	2.10E+02	---	---	2.10E+02
1,2,4-Trimethylbenzene	1.90E+02	9.65E+01	7.25E+03	9.67E+01	5.85E+02	9.65E+01	---	---	9.65E+01
1,2-Dibromo-3-chloropropane	2.20E+00	5.6E+00 ⁽¹²⁾	8.73E-02	5.84E+00	2.51E+01	8.73E-02	---	---	8.73E-02
1,2-Dibromoethane	7.00E-02	4.08E+00	1.03E-02	5.71E+00	1.71E+01	1.03E-02	---	---	1.03E-02
1,2-Dichlorobenzene	3.70E+02	5.71E+02	8.94E+02	5.74E+02	3.12E+03	3.70E+02	---	---	3.70E+02
1,2-Dichloroethane	8.40E-01	1.15E+01	6.86E-01	1.19E+01	9.83E+00	6.86E-01	---	---	6.86E-01
1,2-Dichloropropane	8.50E-01	4.42E+01	1.14E+00	4.42E+01	4.80E+01	8.50E-01	---	---	8.50E-01
1,3,5-Trimethylbenzene	7.80E+01	8.32E+01	7.94E+03	8.33E+01	4.95E+02	7.80E+01	---	---	7.80E+01
1,3-Dichlorobenzene	1.50E+02	8.82E+01	1.01E+03	8.84E+01	1.58E+02	8.82E+01	---	---	8.82E+01
1,3-Dichloropropane	---	6.09E+01	7.21E+00	7.74E+01	1.95E+02	7.21E+00	---	---	7.21E+00
1,4-Dichlorobenzene	8.10E+00	1.19E+03	1.05E+02	1.28E+04	6.62E+04	8.10E+00	---	---	8.10E+00

TABLE 2 - VERTICAL AND EASTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 15 of RI/FS Workplan ⁽²⁾					PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	TotSoil _{Comb} ⁽⁴⁾	GWSoil _{Class 3} ⁽⁵⁾	AirSoil _{Inh-V} ⁽⁶⁾	AirGWSoil _{Inh-V} ⁽⁷⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
	---	4.42E+01	1.35E+01	4.42E+01	4.62E+01	1.35E+01	---	---	1.35E+01
2,2-Dichloropropane	---	4.42E+01	1.35E+01	4.42E+01	4.62E+01	1.35E+01	---	---	4.37E+03
2-Butanone	3.40E+04	7.26E+04	4.37E+03	8.24E+04	4.92E+05	4.37E+03	---	---	3.23E-01
2-Chloroethylvinyl ether	---	3.31E+00	3.23E-01	3.32E+00	6.17E+00	3.23E-01	---	---	5.10E+02
2-Chlorotoluene	5.10E+02	2.51E+03	1.35E+03	3.07E+03	1.29E+04	5.10E+02	---	---	7.92E+01
2-Hexanone	---	7.92E+01	5.78E+02	7.93E+01	3.67E+02	7.92E+01	---	---	3.46E+00
4-Chlorotoluene	---	3.46E+00	1.61E+03	3.46E+00	1.58E+01	3.46E+00	---	---	4.71E+03
4-Isopropyltoluene	---	4.71E+03	3.46E+04	4.94E+03	3.91E+04	4.71E+03	---	---	6.38E+03
4-Methyl-2-pentanone	1.70E+04	2.76E+04	7.39E+02	4.17E+04	1.54E+05	7.39E+02	---	---	3.80E-01
Acetone	1.00E+05	8.11E+03	6.38E+03	8.19E+03	4.45E+04	6.38E+03	---	---	5.80E-01
Acrolein	3.80E-01	8.11E-01	3.54E+00	8.13E-01	1.23E+01	3.80E-01	---	---	7.37E-01
Acrylonitrile	5.50E-01	4.19E+00	3.73E-01	4.55E+00	1.24E+01	3.73E-01	---	---	1.28E+00
Benzene	1.60E+00	3.69E+01	1.28E+00	3.97E+01	2.83E+01	1.28E+00	---	---	2.60E+00
Bromobenzene	1.20E+02	1.4E+02 ⁽¹²⁾	8.62E+02	1.4E+02 ⁽¹²⁾	4.8E+02 ⁽¹²⁾	1.20E+02	---	---	2.60E+00
Bromodichloromethane	2.60E+00	4.62E+02	7.33E+00	---	---	2.60E+00	---	---	7.07E+01
Bromoform	2.40E+02	6.04E+02	7.07E+01	7.24E+02	3.05E+03	7.07E+01	---	---	5.46E+01
Bromomethane	1.50E+01	5.32E+01	1.95E+01	5.53E+01	1.59E+01	1.50E+01	---	---	7.86E+02
Butanol	6.80E+04	3.08E+03	7.86E+02	3.17E+03	3.85E+04	7.86E+02	---	---	5.80E-01
Carbon disulfide	7.20E+02	7.19E+03	2.03E+03	7.74E+03	2.45E+03	7.20E+02	---	---	1.24E+01
Carbon tetrachloride	5.80E-01	1.89E+01	3.09E+00	2.06E+01	1.06E+01	5.80E-01	---	---	2.28E+01
Chlorobenzene	6.00E+02	5.4E+02 ⁽¹²⁾	5.46E+01	5.5E+02 ⁽¹²⁾	1.1E+03 ⁽¹²⁾	5.46E+01	---	---	4.04E+02
Chloroethane	7.20E+00	8.70E+04	4.61E+03	1.11E+05	3.32E+04	7.20E+00	---	---	1.24E+01
Chloroform	5.80E-01	1.35E+01	1.52E+02	1.35E+01	9.02E+00	5.80E-01	---	---	2.40E+02
Chloromethane	3.00E+00	1.59E+02	4.54E+01	1.72E+02	2.27E+01	3.00E+00	---	---	6.59E+03
cis-1,2-Dichloroethene	1.60E+02	4.72E+03	1.24E+01	8.77E+03	5.22E+03	1.24E+01	---	---	1.70E+01
cis-1,3-Dichloropropene	---	4.29E+01	7.44E-01	7.41E+01	8.22E+01	7.44E-01	---	---	2.60E+00
Dibromochloromethane	2.60E+00	3.41E+02	5.50E+00	---	---	2.60E+00	---	---	1.26E+02
Dibromomethane	5.90E+02	1.94E+02	1.26E+02	1.95E+02	6.61E+02	1.26E+02	---	---	4.04E+02
Dichlorodifluoromethane	3.40E+02	4.32E+04	3.58E+04	5.47E+04	1.32E+04	3.40E+02	---	---	1.28E+01
Ethylbenzene	2.30E+02	9.97E+03	3.82E+02	1.11E+04	1.54E+04	2.30E+02	---	---	5.80E+02
Hexachlorobutadiene	2.50E+01	2.28E+01	2.05E+02	2.51E+01	2.70E+02	2.28E+01	---	---	1.70E+01
Isopropylbenzene (Cumene)	5.80E+02	6.25E+03	5.19E+04	6.66E+03	5.66E+04	5.80E+02	---	---	2.40E+02
Methyl acetate	1.00E+05	6.59E+03	7.29E+03	6.63E+03	2.40E+04	6.59E+03	---	---	1.40E+02
Methyl iodide	---	1.21E+02	1.70E+01	1.33E+02	5.10E+01	1.70E+01	---	---	6.38E+03
Methylcyclohexane	1.40E+02	3.29E+04	1.00E+06	3.32E+04	1.63E+04	1.40E+02	---	---	1.90E+02
Methylene chloride	2.20E+01	5.62E+02	6.54E-01	6.59E+02	3.61E+02	6.54E-01	---	---	4.71E+03
Naphthalene	2.10E+02	1.90E+02	4.67E+03	1.93E+02	1.83E+03	1.90E+02	---	---	1.20E+02
n-Butylbenzene	2.40E+02	4.04E+03	1.81E+04	4.75E+03	4.08E+04	2.40E+02	---	---	2.40E+02
n-Propylbenzene	2.40E+02	4.10E+03	6.69E+03	4.55E+03	2.51E+04	2.40E+02	---	---	2.40E+02
o-Xylene	2.80E+02	3.44E+04	3.54E+03	3.49E+04	3.45E+05	2.80E+02	---	---	2.80E+02

TABLE 2 - VERTICAL AND EASTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 15 of RI/FS Workplan ⁽²⁾					PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	TotSoil _{Comb} ⁽⁴⁾	GWSoil _{Class 3} ⁽⁵⁾	AirSoil _{Inh-V} ⁽⁶⁾	AirGWSoil _{Inh-V} ⁽⁷⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
sec-Butylbenzene	2.20E+02	3.75E+03	1.27E+04	4.12E+03	3.05E+04	2.20E+02	---	---	2.20E+02
Styrene	1.70E+03	1.59E+04	1.63E+02	1.73E+04	9.52E+04	1.63E+02	---	---	1.63E+02
tert-Butyl methyl ether (MTBE)	4.10E+01	1.11E+03	9.28E+01	1.19E+03	1.12E+03	4.10E+01	---	---	4.10E+01
tert-Butylbenzene	3.90E+02	3.15E+03	1.49E+04	3.42E+03	2.30E+04	3.90E+02	---	---	3.90E+02
Tetrachloroethene	1.70E+00	2.71E+02	2.51E+00	5.34E+02	3.56E+02	1.70E+00	---	---	1.70E+00
Toluene	5.20E+02	3.3E+04 ⁽¹²⁾	4.11E+02	5.5E+04 ⁽¹²⁾	5.8E+04 ⁽¹²⁾	4.11E+02	---	---	4.11E+02
trans-1,2-Dichloroethene	2.40E+02	6.13E+03	2.45E+01	8.77E+03	4.51E+03	2.45E+01	---	---	2.45E+01
trans-1,3-Dichloropropene	---	6.09E+01	4.02E+00	7.74E+01	8.10E+01	4.02E+00	---	---	4.02E+00
trans-1,4-Dichloro-2-butene	---	2.85E-01	---	2.85E-01	1.16E+00	2.85E-01	---	---	2.85E-01
Trichloroethene	1.00E-01	1.70E+02	1.68E+00	1.82E+02	1.19E+02	1.00E-01	---	---	1.00E-01
Trichlorofluoromethane	1.40E+03	2.81E+04	1.91E+04	3.09E+04	6.44E+03	1.40E+03	---	---	1.40E+03
Trichlorotrifluoroethane	5.60E+03	3.28E+05	1.00E+06	3.32E+05	9.04E+04	5.60E+03	---	---	5.60E+03
Vinyl acetate	1.60E+03	2.21E+03	7.97E+03	2.21E+03	2.79E+03	1.60E+03	---	---	1.60E+03
Vinyl chloride	4.30E-01	1.24E+01	1.11E+00	3.52E+01	4.40E+00	4.30E-01	---	---	4.30E-01
Xylene (total)	2.10E+02	1.10E+03	6.13E+03	1.11E+03	1.86E+03	2.10E+02	---	---	2.10E+02
SVOCs									
1,2Diphenylhydrazine/Azobenzen	2.40E+00	1.99E+01	3.62E+00	1.22E+02	1.17E+04	2.40E+00	---	---	2.40E+00
2,4,5-Trichlorophenol	6.80E+04	1.25E+04	5.05E+03	1.53E+04	5.70E+05	5.05E+03	---	---	5.05E+03
2,4,6-Trichlorophenol	1.70E+02	8.58E+02	6.65E+01	1.70E+03	3.84E+04	6.65E+01	---	---	6.65E+01
2,4-Dichlorophenol	2.10E+03	1.68E+03	5.25E+01	9.56E+03	2.36E+05	5.25E+01	---	---	5.25E+01
2,4-Dimethylphenol	1.40E+04	2.87E+03	4.83E+02	3.63E+03	9.78E+04	4.83E+02	---	---	4.83E+02
2,4-Dinitrophenol	1.40E+03	1.36E+03	1.40E+01	---	---	1.40E+01	---	---	1.40E+01
2,4-Dinitrotoluene	1.40E+03	2.06E+01	5.96E-01	2.09E+01	4.40E+02	5.96E-01	---	---	5.96E-01
2,6-Dinitrotoluene	6.80E+02	2.81E+01	5.39E-01	3.10E+01	1.02E+03	5.39E-01	---	---	5.39E-01
2-Chloronaphthalene	2.60E+04	4.96E+04	1.00E+05	---	---	2.60E+04	---	---	2.60E+04
2-Chlorophenol	2.60E+02	2.40E+03	2.44E+02	4.53E+03	7.44E+04	2.44E+02	---	---	2.44E+02
2-Methylnaphthalene	---	2.48E+03	2.55E+03	---	---	2.48E+03	---	---	2.48E+03
2-Nitroaniline	2.00E+03	1.7E+01 ⁽¹²⁾	3.3E+01 ⁽¹²⁾	1.7E+01 ⁽¹²⁾	5.4E+02 ⁽¹²⁾	1.70E+01	---	---	1.70E+01
2-Nitrophenol	---	4.06E+02	2.01E+01	5.78E+02	1.67E+04	2.01E+01	---	---	2.01E+01
3,3'-Dichlorobenzidine	4.30E+00	4.24E+01	7.02E+00	---	---	4.30E+00	---	---	4.30E+00
3-Nitroaniline	---	1.55E+02	3.82E+00	6.45E+02	2.25E+04	3.82E+00	---	---	3.82E+00
4,6-Dinitro-2-methylphenol	---	3.31E+01	1.40E+01	3.39E+01	1.47E+03	1.40E+01	---	---	1.40E+01
4-Bromophenyl phenyl ether	---	1.10E+00	3.96E+01	8.42E+00	9.99E+02	1.10E+00	---	---	1.10E+00
4-Chloro-3-methylphenol	---	2.99E+03	6.76E+02	2.46E+04	1.00E+06	6.76E+02	---	---	6.76E+02
4-Chloroaniline	2.70E+03	7.49E+02	6.66E+01	1.03E+03	2.81E+04	6.66E+01	---	---	6.66E+01
4-Chlorophenyl phenyl ether	---	7.99E-01	3.58E+00	2.15E+00	7.04E+01	7.99E-01	---	---	7.99E-01
4-Nitroaniline	---	4.3E+01 ⁽¹²⁾	1.2E+01 ⁽¹²⁾	4.3E+01 ⁽¹²⁾	1.5E+03 ⁽¹²⁾	1.20E+01	---	---	1.20E+01
4-Nitrophenol	5.50E+03	1.07E+02	1.49E+01	1.16E+02	4.41E+03	1.49E+01	---	---	1.49E+01
Acenaphthene	3.30E+04	3.72E+04	3.53E+04	---	---	3.30E+04	---	---	3.30E+04

TABLE 2 - VERTICAL AND EASTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 15 of RI/FS Workplan ⁽²⁾					PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	TotSoil _{Comb} ⁽⁴⁾	GWSoil _{Class 3} ⁽⁵⁾	AirSoil _{Inh-V} ⁽⁶⁾	AirGWSoil _{Inh-V} ⁽⁷⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
Acenaphthylene	---	3.72E+04	6.10E+04	---	---	3.72E+04	---	---	3.72E+04
Acetophenone	1.70E+03	3.30E+03	1.23E+03	3.47E+03	4.13E+04	1.23E+03	---	---	1.23E+03
Aniline	3.40E+02	9.25E+01	4.09E+01	9.43E+01	2.30E+03	4.09E+01	---	---	4.09E+01
Anthracene	1.00E+05	1.86E+05	1.00E+06	---	---	1.00E+05	---	---	1.00E+05
Atrazine (Aatrex)	8.60E+00	8.59E+01	1.25E+00	2.44E+03	1.38E+05	1.25E+00	---	---	1.25E+00
Benzaldehyde	6.80E+04	3.44E+02	1.57E+03	3.46E+02	2.02E+03	3.44E+02	---	---	3.44E+02
Benzidine	8.30E-03	3.29E-02	1.22E-03	5.45E-02	1.94E+00	1.22E-03	---	---	1.22E-03
Benzo(a)anthracene	2.30E+00	2.36E+01	1.99E+03	3.24E+03	1.00E+06	2.30E+00	---	---	2.30E+00
Benzo(a)pyrene	2.30E-01	2.37E+00	3.82E+02	7.32E+02	1.00E+06	2.30E-01	---	---	2.30E-01
Benzo(b)fluoranthene	2.30E+00	2.36E+01	6.73E+03	5.31E+03	1.00E+06	2.30E+00	---	---	2.30E+00
Benzo(g,h,i)perylene	---	1.86E+04	1.00E+06	---	---	1.86E+04	---	---	1.86E+04
Benzo(k)fluoranthene	2.30E+01	2.37E+02	6.89E+04	1.32E+05	1.00E+06	2.30E+01	---	---	2.30E+01
Benzoic acid	1.00E+05	4.96E+02	2.83E+04	4.97E+02	1.83E+04	4.96E+02	---	---	4.96E+02
Benzyl alcohol	1.00E+05	6.25E+03	2.62E+03	6.44E+03	1.98E+05	2.62E+03	---	---	2.62E+03
Biphenyl	2.60E+04	1.94E+02	3.78E+04	1.95E+02	3.81E+03	1.94E+02	---	---	1.94E+02
Bis(2-Chloroethoxy)methane	---	6.25E+00	1.32E+00	9.76E+00	1.24E+02	1.32E+00	---	---	1.32E+00
Bis(2-Chloroethyl)ether	6.20E-01	2.77E+00	2.36E-01	3.10E+00	2.57E+01	2.36E-01	---	---	2.36E-01
Bis(2-Chloroisopropyl)ether	---	1.08E+02	2.13E+01	1.79E+02	1.38E+03	2.13E+01	---	---	2.13E+01
Bis(2-Ethylhexyl)phthalate	1.40E+02	5.63E+02	8.18E+03	---	---	1.40E+02	---	---	1.40E+02
Butyl benzyl phthalate	2.40E+02	1.58E+04	4.03E+05	1.80E+04	1.00E+06	2.40E+02	---	---	2.40E+02
Caprolactam	1.00E+05	2.35E+02	7.01E+03	2.35E+02	8.54E+03	2.35E+02	---	---	2.35E+02
Carbazole	9.60E+01	9.54E+02	5.12E+02	---	---	9.60E+01	---	---	9.60E+01
Chrysene	2.30E+02	2.36E+03	1.73E+05	5.11E+05	1.00E+06	2.30E+02	---	---	2.30E+02
Dibenz(a,h)anthracene	2.30E-01	2.37E+00	1.07E+03	1.70E+03	1.00E+06	2.30E-01	---	---	2.30E-01
Dibenzofuran	1.70E+03	2.73E+03	4.98E+03	---	---	1.70E+03	---	---	1.70E+03
Diethyl phthalate	1.00E+05	2.04E+03	2.33E+04	2.05E+03	9.79E+04	2.04E+03	---	---	2.04E+03
Dimethyl phthalate	1.00E+05	9.33E+02	9.29E+03	9.35E+02	3.05E+04	9.33E+02	---	---	9.33E+02
Di-n-butyl phthalate	6.80E+04	1.62E+04	4.95E+05	2.14E+04	1.00E+06	1.62E+04	---	---	1.62E+04
Di-n-octyl phthalate	2.70E+04	2.5E+04 ⁽¹²⁾	1.00E+06	---	---	2.5E+04	---	---	2.5E+04
Fluoranthene	2.40E+04	2.48E+04	2.86E+05	---	---	2.40E+04	---	---	2.40E+04
Fluorene	2.60E+04	2.48E+04	4.46E+04	---	---	2.48E+04	---	---	2.48E+04
Hexachlorobenzene	1.20E+00	6.91E+00	5.65E+01	1.65E+01	7.00E+02	1.20E+00	---	---	1.20E+00
Hexachlorocyclopentadiene	4.10E+03	1.02E+01	9.64E+02	1.02E+01	1.89E+02	1.02E+01	---	---	1.02E+01
Hexachloroethane	1.40E+02	5.16E+02	2.74E+02	8.32E+02	1.16E+04	1.40E+02	---	---	1.40E+02
Indeno(1,2,3-cd)pyrene	2.30E+00	2.37E+01	1.94E+04	2.17E+04	1.00E+06	2.30E+00	---	---	2.30E+00
Isophorone	2.00E+03	1.90E+03	3.36E+02	1.93E+03	2.89E+04	3.36E+02	---	---	3.36E+02
Nitrobenzene	1.10E+02	1.85E+02	1.31E+01	4.05E+02	4.03E+03	1.31E+01	---	---	1.31E+01
n-Nitrosodimethylamine	3.80E-02	1.30E-01	4.13E-03	1.69E-01	4.52E+00	4.13E-03	---	---	4.13E-03

TABLE 2 - VERTICAL AND EASTERN EXTENT EVALUATION COMPARISON VALUES⁽¹⁾

Chemicals of Interest	Potential Preliminary Screening Values (PSVs) from Table 15 of RI/FS Workplan ⁽²⁾					PSV	Potential Background Values		Extent Evaluation Comparison Value
	EPA Region 6 Soil Screening Criteria ⁽³⁾	TotSoil _{Comb} ⁽⁴⁾	GWSoil _{Class 3} ⁽⁵⁾	AirSoil _{Inh-V} ⁽⁶⁾	AirGWSoil _{Inh-V} ⁽⁷⁾		TCEQ ⁽¹⁰⁾	Site-Specific ⁽¹¹⁾	
n-Nitrosodi-n-propylamine	2.70E-01	1.36E+00	3.95E-02	---	---	3.95E-02	---	---	3.95E-02
n-Nitrosodiphenylamine	3.90E+02	1.95E+03	3.16E+02	---	---	3.16E+02	---	---	3.16E+02
o-Cresol	3.40E+04	1.92E+03	1.06E+03	2.04E+03	5.28E+04	1.06E+03	---	---	1.06E+03
Pentachlorophenol	1.00E+01	1.06E+02	9.16E-01	3.26E+02	2.20E+04	9.16E-01	---	---	9.16E-01
Phenanthrene	---	1.86E+04	6.21E+04	---	---	1.86E+04	---	---	1.86E+04
Phenol	1.00E+05	2.38E+03	2.86E+03	2.41E+03	6.51E+04	2.38E+03	---	---	2.38E+03
Pyrene	3.20E+04	1.86E+04	1.67E+05	---	---	1.86E+04	---	---	1.86E+04
Pyridine	6.80E+02	1.43E+02	1.03E+01	1.66E+02	5.71E+01	1.03E+01	---	---	1.03E+01
Sulfate	---	---	---	---	---	NV	---	---	NV
Chloride	---	---	---	---	---	NV	---	---	NV

Notes:

1. All values in mg/kg.
2. Values from Table 15 of RI/FS Workplan unless indicated otherwise (updated to reflect changes in toxicity data from 2005 to 2007)
3. From EPA's "Region 6 Human Health Medium-Specific Screening Levels 2004-2005". Industrial Outdoor Worker.
4. TotSoil_{Comb} PCL = TCEQ Protective Concentration Level for 30 acre source area Commercial/Industrial total soil combined pathway (includes inhalation; ingestion; dermal pathways).
5. GWSoil_{Class 3} PCL = TCEQ Protective Concentration Level for 30 acre source area Commercial/Industrial soil-to-groundwater leaching for Class 3 groundwater ingestion pathway.
6. AirSoil_{Inh-V} PCL = TCEQ Protective Concentration Level for 30 acre source area Commercial/Industrial soil-to-air pathway (inhalation of volatiles and particulates).
7. AirGW-Soil_{Inh-V} PCL = TCEQ Protective Concentration Level for 30 acre source area Commercial/Industrial soil and groundwater-to-air pathway (inhalation of volatiles and particulates).
8. From EPA's "Ecological Soil Screening Level". Values indicated with "*" are based on soil Invertebrates. Values indicated with "***" are based on avian wildlife. Values indicated with "****" are based on mammalian wildlife. All other values are based on plants.
9. From Table 3-4 of TCEQ "Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas". Values indicated with "+" are based on plant exposure. All other values are based on earthworm exposure.
10. NV = No Preliminary Screening Value.
10. From 30 TAC 350.51(m)
11. 95% UTL calculated from site-specific background samples.
12. Updated from Table 15 of RI/FS Workplan to reflect changes in toxicity data from 2005 to 2007 indicated in TCEQ PCL tables.

**TABLE 3 - DETECTED SOIL CONCENTRATIONS EXCEEDING PSVS AND BACKGROUND -
WEST SIDE OF SOUTH AREA**

Sample Location	Sample Depth (ft)	Chemical of Interest	Concentration (mg/kg)	Extent Evaluation Comparison Value ⁽¹⁾ (mg/kg)
SA1SB15	0-0.5	Benzo(a)anthracene	2.28J	0.62
		Benzo(a)pyrene	3.6J	0.062
		Benzo(b)fluoranthene	2.27J	0.62
		Copper	105	61
		Dibenz(a,h)anthracene	0.313	0.062
		Indeno(1,2,3-cd)pyrene	1.39J	0.62
		Lead	208	17.93
	1-2	Zinc	877	127
		Benzo(a)anthracene	4.21J	0.62
		Benzo(a)pyrene	4.88J	0.062
		Benzo(b)fluoranthene	5.34J	0.62
		Copper	73.2	61
		Dibenz(a,h)anthracene	0.817	0.062
		Indeno(1,2,3-cd)pyrene	4.37J	0.62
		Lead	395	17.93
		Zinc	1090	127

**TABLE 3 - DETECTED SOIL CONCENTRATIONS EXCEEDING PSVS AND BACKGROUND -
WEST SIDE OF SOUTH AREA**

Sample Location	Sample Depth (ft)	Chemical of Interest	Concentration (mg/kg)	Extent Evaluation Comparison Value ⁽¹⁾ (mg/kg)
SA2SB16	0-0.5	Benzo(a)anthracene	1.29J	0.62
		Benzo(a)pyrene	1.95J	0.062
		Benzo(b)fluoranthene	2.05J	0.62
		Chromium	40.6	30
		Dibenz(a,h)anthracene	0.347	0.062
		Indeno(1,2,3-cd)pyrene	1.44J	0.62
		Lead	45.8	17.93
		Zinc	235	127
	1-2	Aroclor-1254	3.42	0.83
		Benzo(a)anthracene	1.71J	0.62
		Benzo(a)pyrene	2.13J	0.062
		Benzo(b)fluoranthene	2.76J	0.62
		Chromium	45.6	30
		Copper	128	61
		Dibenz(a,h)anthracene	0.322	0.062
		Indeno(1,2,3-cd)pyrene	1.31J	0.62
		Lead	702	17.93
		Molybdenum	10.4	2
		Zinc	525	127

**TABLE 3 - DETECTED SOIL CONCENTRATIONS EXCEEDING PSVS AND BACKGROUND -
WEST SIDE OF SOUTH AREA**

Sample Location	Sample Depth (ft)	Chemical of Interest	Concentration (mg/kg)	Extent Evaluation Comparison Value ⁽¹⁾ (mg/kg)
SA3SB17	0-0.5	Benzo(a)anthracene	2.41J	0.62
		Benzo(a)pyrene	3.41J	0.062
		Benzo(b)fluoranthene	4.66J	0.62
		Copper	207	61
		Dibenz(a,h)anthracene	0.465	0.062
		Indeno(1,2,3-cd)pyrene	1.47J	0.62
		Molybdenum	2.24	2
		Zinc	412	127
	1-2	Aroclor-1254	11.5	0.22
		Benzo(a)pyrene	0.608J	0.062
		Benzo(b)fluoranthene	0.835J	0.62
		Copper	487	61
		Dibenz(a,h)anthracene	0.177	0.062
		Lead	252	17.93
		Mercury	0.85	0.1
		Zinc	865	127
SA4SB18	0-0.5	Aroclor-1254	0.734J+	0.22
		Barium	540J	462
		Benzo(a)pyrene	0.329J	0.062
		Lead	146J	17.93
		Zinc	414	127

**TABLE 3 - DETECTED SOIL CONCENTRATIONS EXCEEDING PSVS AND BACKGROUND -
WEST SIDE OF SOUTH AREA**

Sample Location	Sample Depth (ft)	Chemical of Interest	Concentration (mg/kg)	Extent Evaluation Comparison Value ⁽¹⁾ (mg/kg)
<hr/>				
SA5SB19	0-0.5	Aroclor-1254	0.457	0.22
		Arsenic	11.5	8.66
		Benzo(a)pyrene	0.371J	0.062
		Lead	152J	17.93
		Molybdenum	2.69J-	2
		Zinc	412	127
<hr/>				
SA6SB20	0-0.5	Dibenz(a,h)anthracene	0.132	0.062

Notes:

(1) Value from Table 1.

(2) Data qualifiers: J = estimated value; J- = estimated value, biased low; J+ = estimated value, biased high.

**TABLE 4 - DETECTED SOIL CONCENTRATIONS EXCEEDING PSVS AND BACKGROUND -
1 - 2 FT SAMPLE DEPTH INTERVAL**

Sample Location	Chemical of Interest	Concentration (mg/kg)	Extent Evaluation Comparison Value ⁽¹⁾ (mg/kg)
ND3SB04	1,2,3-Trichloropropane Trichloroethene	0.168 0.537	0.0034 0.1
SA1SB15	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead	4.21J 4.88J 5.34J 0.817 4.37J 395	2.3 0.23 2.3 0.23 2.3 151
SA2SB16	Aroclor-1254 Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Lead	3.42 2.13J 2.76J 0.322 702	0.83 0.23 2.3 0.23 151
SA3SB17	Aroclor-1254 Benzo(a)pyrene Lead Mercury	11.5 0.608J 252 0.85	0.83 0.23 151 0.391
SB2SB22	Aroclor-1254 Benzo(a)pyrene	2.84 0.38J	0.83 0.23
SB4SB24	Aroclor-1254 Benzo(a)pyrene Dibenz(a,h)anthracene	2.73 1.37J 0.324	0.83 0.23 0.23
SC3SB27	Dibenz(a,h)anthracene	0.606	0.23
SC4SB28	Benzo(a)pyrene Lead	1.2J 192J	0.23 151
SD3SB33	Benzo(a)pyrene	0.509J	0.23
SD5SB35	Aroclor-1254 Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Mercury	1.41 4.79 4.45J 5.97 1.23 2.79J 0.5	0.83 2.3 0.23 2.3 0.23 2.3 0.391

**TABLE 4 - DETECTED SOIL CONCENTRATIONS EXCEEDING PSVS AND BACKGROUND -
1 - 2 FT SAMPLE DEPTH INTERVAL**

Sample Location	Chemical of Interest	Concentration (mg/kg)	Extent Evaluation Comparison Value ⁽¹⁾ (mg/kg)
SF2SB44	Dibenz(a,h)anthracene	0.354J	0.23
SF3SB45	Arsenic	9.58	8.66
	Benzo(a)pyrene	0.966J	0.23
SF4SB46	Benzo(a)pyrene	0.921J	0.23
SG4SB56	Benzo(a)pyrene	0.248J	0.23
SG6SB59	Benzo(a)pyrene	0.276J	0.23
SI1SB69	Arsenic	9.38	8.66

Notes:

(1) Value from Table 2.

(2) Data qualifiers: J = estimated value.

TABLE 5 - PROPOSED PHASE 2 SOIL SAMPLE ANALYSES

Sample Location(s)	Sample Depth (ft)	Analytical Parameter
L20SB01	0-0.5	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Zinc
	1-2	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Zinc
L20SB02	0-0.5	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Zinc
	1-2	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Zinc
	4-5 ⁽¹⁾	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Zinc

TABLE 5 - PROPOSED PHASE 2 SOIL SAMPLE ANALYSES

Sample Location(s)	Sample Depth (ft)	Analytical Parameter
L20SB03	0-0.5	Aroclor-1254 Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Chromium Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Molybdenum Zinc
	1-2	Aroclor-1254 Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Chromium Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Molybdenum Zinc
	4-5 ⁽¹⁾	Aroclor-1254 Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Chromium Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Molybdenum Zinc

TABLE 5 - PROPOSED PHASE 2 SOIL SAMPLE ANALYSES

Sample Location(s)	Sample Depth (ft)	Analytical Parameter
L20SB04	0-0.5	Aroclor-1254 Barium Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Chromium Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Mercury Molybdenum Zinc
		Aroclor-1254 Barium Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Chromium Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Mercury Molybdenum Zinc
		Aroclor-1254 Barium Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Chromium Copper Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Mercury Molybdenum Zinc
		Aroclor-1254 Benzo(a)pyrene Benzo(b)fluoranthene Copper Dibenz(a,h)anthracene Lead Mercury Zinc

TABLE 5 - PROPOSED PHASE 2 SOIL SAMPLE ANALYSES

Sample Location(s)	Sample Depth (ft)	Analytical Parameter
L20SB05	0-0.5	Aroclor-1254 Arsenic Barium Benzo(a)pyrene Lead Molybdenum Zinc
L20SB06	0-0.5	Aroclor-1254 Arsenic Barium Benzo(a)pyrene Lead Molybdenum Zinc
L20SB07	0-0.5	Aroclor-1254 Arsenic Benzo(a)pyrene Dibenz(a,h)anthracene Lead Molybdenum Zinc
ND3SB04	4-5 ⁽¹⁾	1,2,3-Trichloropropane Trichloroethene
SA1SB15	4-5 ⁽¹⁾	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead
SA2SB16	4-5 ⁽¹⁾	Aroclor-1254 Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Lead
SA3SB17	4-5 ⁽¹⁾	Aroclor-1254 Benzo(a)pyrene Lead Mercury
SB2SB22	4-5 ⁽¹⁾	Aroclor-1254 Benzo(a)pyrene
SB4SB24	4-5 ⁽¹⁾	Aroclor-1254 Benzo(a)pyrene Dibenz(a,h)anthracene
SC3SB27	4-5 ⁽¹⁾	Dibenz(a,h)anthracene

TABLE 5 - PROPOSED PHASE 2 SOIL SAMPLE ANALYSES

Sample Location(s)	Sample Depth (ft)	Analytical Parameter
SC4SB28	4-5 ⁽¹⁾	Benzo(a)pyrene Lead
SD3SB33	4-5 ⁽¹⁾	Benzo(a)pyrene
SD5SB35	4-5 ⁽¹⁾	Aroclor-1254 Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Mercury
SF2SB44	4-5 ⁽¹⁾	Dibenz(a,h)anthracene
SF3SB45	4-5 ⁽¹⁾	Arsenic Benzo(a)pyrene
SF4SB46	4-5 ⁽¹⁾	Benzo(a)pyrene
SG4SB56	4-5 ⁽¹⁾	Benzo(a)pyrene
SG6B59	4-5 ⁽¹⁾	Benzo(a)pyrene
SI1SB69	4-5 ⁽¹⁾	Arsenic
SB-201, SB-202, SB-203	0-0.5	SVOCs ⁽²⁾ Pesticides ⁽³⁾ Metals ⁽⁴⁾ PCBs ⁽⁵⁾
	1.5-2	VOCs ⁽⁶⁾ SVOCs ⁽²⁾ Pesticides ⁽³⁾ Metals ⁽⁴⁾ PCBs ⁽⁵⁾

TABLE 5 - PROPOSED PHASE 2 SOIL SAMPLE ANALYSES

Sample Location(s)	Sample Depth (ft)	Analytical Parameter
SB-204, SB-205, SB-206	1-2 ⁽⁷⁾	VOCs ⁽⁶⁾ SVOCs ⁽²⁾ Pesticides ⁽³⁾ Metals ⁽⁴⁾ PCBs ⁽⁵⁾
	3-4 ⁽⁷⁾	VOCs ⁽⁶⁾ SVOCs ⁽²⁾ Pesticides ⁽³⁾ Metals ⁽⁴⁾ PCBs ⁽⁵⁾
	5-6 ⁽⁷⁾	VOCs ⁽⁶⁾ SVOCs ⁽²⁾ Pesticides ⁽³⁾ Metals ⁽⁴⁾ PCBs ⁽⁵⁾

Notes:

- (1) Proposed sample depth interval is 4 to 5 feet or one foot interval above saturated zone if saturated conditions encountered at depths less than 5 feet.
- (2) All SVOCs listed in Table B-1 of Field Sampling Plan
- (3) All pesticides listed in Table B-1 of Field Sampling Plan
- (4) All metals listed in Table B-1 of Field Sampling Plan, including chromium (VI)
- (5) All PCBs listed in Table B-1 of Field Sampling Plan
- (6) All VOCs listed in Table B-1 of Field Sampling Plan
- (7) If debris is encountered in borings SB-204, SB-205, or SB-206, soil samples for laboratory analysis from that boring will be collected (to the extent possible based on soil and debris type and debris thickness and depth) from 1 foot depth intervals immediately above the debris, immediately below the debris, and within the approximate center of the debris zone. If refusal is encountered, a soil sample for laboratory analysis will be collected from the depth interval immediately above the refusal point and an additional boring will be advanced approximately five feet from the original boring. A soil sample will be collected for laboratory analysis from this additional boring at the depth interval corresponding to where refusal was encountered in the previous boring.

APPENDIX A
REFERENCES

APPENDIX A

REFERENCES

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APPENDIX B
STATISTICAL CALCULATIONS

APPENDIX B

STATISTICAL CALCULATIONS

Tolerance limits were calculated for background metals analytes using the procedure described in Gibbons, 1994. Relevant pages from Gibbons, 1994 describing this procedure are provided in Attachment B-1. A step-by-step discussion of these calculations is provided below.

Step 1 - Calculate the Background Mean and Standard Deviation

These parameters were calculated for each background metal using EPA's *PRO UCL* statistical software package (EPA, 2004). These parameters are summarized in Table B-1.

Step 2- Calculate Tolerance Limit

Since the purpose of the tolerance limit is to identify metals concentrations that are higher than background a one-sided upper tolerance limit was calculated.

As provided in Gibbons, the tolerance limit is calculated from:

$$TL = \text{mean} + K * (\text{std. deviation})$$

Where K is a factor determined from statistical tables based on the number of samples in the background data set and the desired confidence and coverage goals. Consistent with Gibbons, 1994, a 95% confidence level with 95% coverage was used. Based on a background data set of 10 samples and these goals, and using Table 4.2 of Gibbons (see Attachment B-1), K was set at 2.911 for all background data sets, except for barium and zinc. The resultant upper tolerance limits are listed in Table B-1.

In the case of barium, inspection of the background data set (see Table B-2) indicates one value (1,130 mg/kg) significantly higher than the other nine values (mean of 244 mg/kg), and likely indicative of anthropogenic sources. Although EPA, 2002 does provide for consideration of anthropogenic sources not related to the site of interest when making background comparisons, for conservative purposes and based on previous discussions with EPA regarding the background zinc data (see below), this anomalously high barium concentration was removed from the background data set prior to calculating the barium tolerance limit. The background barium mean and standard deviation based on the remaining nine background values are listed in Table B-1. These values along with a K factor based on nine samples were used to calculate the barium tolerance limit in Table B-1.

Similarly for zinc, three values in the background data set (Table B-3) are significantly higher than the other seven values. Consistent with previous discussions with EPA regarding the spatial distribution of the zinc concentrations within the background area, these three zinc concentrations were removed from the background data set prior to calculating the zinc tolerance limit. The background zinc mean and standard deviation based on the remaining seven background values are listed in Table B-1. These values along with a K factor based on seven samples were used to calculate the zinc tolerance limit in Table B-1.

TABLE B-1 - BACKGROUND SAMPLE STATISTICS

Compound	Site-Specific Background Values (mg/kg)		
	Mean	Std. Dev.	Upper Tolerance Limit ⁽¹⁾
Arsenic	3.44	1.79	8.66
Barium ⁽²⁾	244	72	462
Chromium	15.2	3.0	24.0
Copper	12.1	4.0	23.6
Lead	13.4	1.5	17.9
Lithium	21.1	5.2	36.2
Manganese	377	94	650
Mercury	0.021	0.005	0.035
Molybdenum	0.52	0.07	0.74
Zinc ⁽³⁾	54.8	21.3	127.2

Note:

- (1) One-side upper tolerance limit for 95% confidence and 95% coverage.
- (2) Barium parameters calculated using data set with highest concentration removed.
- (3) Zinc parameters calculated using data set with three highest concentrations removed.

TABLE B-2 - BARIUM CONCENTRATIONS IN BACKGROUND SOIL SAMPLES

Sample Location	Concentration (mg/kg)
BSS-1	322
BSS-2	361
BSS-3	237
BSS-4	281
BSS-5	150
BSS-6	1130
BSS-7	281
BSS-8	215
BSS-9	177
BSS-10	177

TABLE B-3 - ZINC CONCENTRATIONS IN BACKGROUND SOIL SAMPLES

Sample Location	Concentration (mg/kg)
BSS-1	969
BSS-2	81.2
BSS-3	77
BSS-4	40.9
BSS-5	36.6
BSS-6	890J
BSS-7	227J
BSS-8	74J
BSS-9	37.1J
BSS-10	36.8J

Note:

Data qualifier: J = estimated value.

Attachment B-1

Excerpted Pages from Gibbons, 1994

STATISTICAL METHODS FOR GROUNDWATER MONITORING

Robert D. Gibbons

University of Illinois at Chicago



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allowable, the costly verification stage would not be required. This two-stage procedure is quite similar to the prediction limit approach described by Davis and McNichols (1987).

4.2 NORMAL TOLERANCE LIMITS

Assume that we have available estimates \bar{x} and s of the mean and standard deviation based on n background observations with degrees of freedom $f = n - 1$ from a normal distribution. We require the factor K from the two-sided interval

$$\bar{x} \pm Ks \quad (4.1)$$

which leads to the statement, "At least a proportion P of the normal population is between $\bar{x} - Ks$ and $\bar{x} + Ks$ with confidence $1 - \alpha$." Wald and Wolfowitz (1946) showed that K can be approximated by

$$K \sim ru \quad (4.2)$$

where r is a function of n and P and is determined from the normal distribution

$$\frac{1}{\sqrt{2\pi}} \int_{(1/\sqrt{n})-r}^{(1/\sqrt{n})+r} \exp\left(-\frac{x^2}{2}\right) dx = P \quad (4.3)$$

and u is a function of f and α and is defined as the $(1 - \alpha)100\%$ of the chi-square distribution as

$$u = \sqrt{\frac{f}{\chi_{\alpha, f}^2}} \quad (4.4)$$

By selecting a coverage probability P , (4.3) may be solved for r (since n is known), and by selecting a confidence level P , (4.4) may be solved for u (since $f = n - 1$ is known). Two-sided values of K are provided in Table 4.1 for $n = 4$ to ∞ , 95% confidence and 95% and 99% coverage.

For one-sided tolerance limits $\bar{x} + Ks$, we require the factor K which leads to the statement, "At least a proportion P of the normal population is less than $\bar{x} + Ks$ with confidence $1 - \alpha$." Owen (1962) determines K by

$$\Pr\{(noncentral t with \delta = z\sqrt{n}) \leq K\sqrt{n}\} = 1 - \alpha \quad (4.5)$$

where δ is the noncentrality parameter of the noncentral t -distribution with

TABLE 4.1 Factors (K) for Constructing Two-Sided Normal Tolerance Limits ($\bar{x} \pm Ks$) for 95% Confidence and 95% and 99% Coverage

n	95% Coverage	99% Coverage
4	6.370	8.299
5	5.079	6.634
6	4.414	5.775
7	4.007	5.248
8	3.732	4.891
9	3.532	4.631
10	3.379	4.433
11	3.259	4.277
12	3.169	4.150
13	3.081	4.044
14	3.012	3.955
15	2.954	3.878
16	2.903	3.812
17	2.858	3.754
18	2.819	3.702
19	2.784	3.656
20	2.752	3.615
21	2.723	3.577
22	2.697	3.543
23	2.673	3.512
24	2.651	3.483
25	2.631	3.457
30	2.549	3.350
35	2.490	3.272
40	2.445	3.212
50	2.379	3.126
60	2.333	3.066
80	2.272	2.986
100	2.233	2.934
500	2.070	2.721
∞	1.960	2.576

$f = n - 1$ degrees of freedom, and z is defined by

$$\frac{1}{\sqrt{2\pi}} \int_{-\infty}^z \exp\left(-\frac{x^2}{2}\right) dx = P \quad (4.6)$$

One-sided values of K are provided in Table 4.2 for $n = 4$ to ∞ , 95% confidence and 95% and 99% coverage.

To illustrate the differences between tolerance and prediction limits, Figure 4.1 displays power curves for a 95% confidence normal prediction

limit for the
 $n = 20$, and a
 limit and 95%
 Figure 4.1 r
 comparisons
 have expecte
 limit that is
 95% confide
 tion monitor

TABLE 4.2 Factors (K) for Constructing One-Sided Normal Tolerance Limits ($\bar{x} + Ks$) for 95% Confidence and 95% and 99% Coverage

n	95% Coverage	99% Coverage
4	5.144	7.042
5	4.210	5.749
6	3.711	5.065
7	3.401	4.643
8	3.188	4.355
9	3.032	4.144
10	2.911	3.981
11	2.815	3.852
12	2.736	3.747
13	2.670	3.659
14	2.614	3.585
15	2.566	3.520
16	2.523	3.463
17	2.486	3.414
18	2.453	3.370
19	2.423	3.331
20	2.396	3.295
21	2.371	3.262
22	2.350	3.233
23	2.329	3.206
24	2.309	3.181
25	2.292	3.158
30	2.220	3.064
35	2.166	2.994
40	2.126	2.941
50	2.065	2.863
60	2.022	2.807
80	1.965	2.733
100	1.927	2.684
500	1.763	2.475
∞	1.645	2.326

limit for the next $k = 100$ measurements based on a previous sample of $n = 20$, and a corresponding 95% confidence 95% coverage normal tolerance limit and 95% confidence 99% coverage normal tolerance limit. Inspection of Figure 4.1 reveals that the probability of failing at least one of the 100 comparisons by chance alone is much greater for the tolerance limits which have expected failure rates of 1% and 5%, respectively, versus the prediction limit that is designed to include 100% of the next 100 measurements with 95% confidence. Use of these two alternative limits for groundwater detection monitoring is anything but a "matter of personal preference."

APPENDIX C

SITE SOIL BIOLOGICAL ACTIVITY CONSIDERATIONS

APPENDIX C

SITE SOIL BIOLOGICAL ACTIVITY CONSIDERATIONS

The coastal uplands of the central Texas coast generally support a variety of burrowing wildlife, and an assortment of animals that rely on the burrowers for abandoned tunnels. Burrowing animals observed at the Gulfco site (the Site) include field mice, rat snakes, fiddler crabs, and ghost crabs. The distribution of burrowing organisms is typically restricted by the availability of food and soil characteristics. Most species of burrowing mammals, reptiles and crustaceans prefer to excavate their tunnels in sandy loam or sandy clay, and have limited success in hard compacted surface soils or soils containing rocks and shell (Crane, 1975)(Grimes, et al., 1989).

Shallow soil borings advanced to depths of approximately two feet or more at the Gulfco Marine Maintenance Site indicate that approximately 80% of the surface or near surface soil at the Site (i.e. the portion of the Site not covered by concrete slabs or gravel/shell road base material) is composed of compacted clay, shell hash, and brick fragments that would tend to inhibit burrowing activity. Soil borings were advanced at 99 locations as part of the shallow soil sampling program. Shallow soils at 81 of these locations were characterized as either compacted fill material (typically described as varying combinations of sand, clay, gravel, oyster shell, and/or brick fragments) or firm clays that would be difficult for borrowing animals to excavate. The probability that burrowing wildlife would utilize the compacted soils is low. Small burrowing animals typically avoid hard compacted surfaces (Crane, 1975)(Grimes, et al., 1989).

Studies have shown that the average burrow depth and depth of bioturbation for burrowing organisms (intertidal and supratidal) is 9.8 cm (approximately four inches). This includes a large number of shallow burrowing species and a few species that burrow to 60 cm (approximately 24 inches) (Boudreau 1998; Kristensen, and Kostka, 2004).

The following paragraphs provide descriptions of some of the wildlife that could potentially inhabit the soils at the Gulfco Site. None of the wildlife described here are likely to utilize the hard compacted surface soils covering a portion of the Site, or the clay dominated subsurface soils found under most of the Site. Scientific studies indicate that most of the small burrowing mammals, crustaceans, and reptiles found in Texas coastal habitats prefer soft sandy surface soils and are restricted by soil composition and compaction, to the upper 24 inches of soil (Kristensen and Kostka 2004).

It should be noted that the wildlife discussed below were chosen based on the terrestrial receptors of concern identified for the Site in the Screening Level Ecological Risk Assessment (SLERA)(PBW, 2005). If the receptor of concern (ROC) for a given guild does not burrow, an alternative animal has been included to ensure that all guilds that may contain burrowing species have been evaluated. The fiddler crab is also included because it has been observed along and north of Marlin Avenue and because it may burrow in the more moist soils at the Site.

Detritivores, Invertebrates, and Terrestrial Plants

Earthworms (*Lumbricus terrestris*)

The earthworm was chosen as the ROC in the SLERA (PBW, 2005) for the detritivores and invertebrates at the Site. Earthworms burrow into all types of soil but are most effective in loamy soil. Burrows are continuous from surface opening to a maximum depth of 40 cm (~16 in) and

have few interconnections (Daane, et al., 1997). Earthworms loosen soil by excavating winding burrows through the soil, and leaving a trail of partially digested organic detritus and nutrients. The burrows promote water percolation and allow oxygen to penetrate deeper soil layers.

Mammalian Herbivores and Omnivores

Deer mouse (*Peromyscus maniculatus*)

The omnivorous deer mouse was chosen as the ROC for the various feeding guilds of small mammals at the Site. In Texas, deer mice usually inhabit grasslands or areas of open brush. Deer mice are not burrowers but build their nest from grasses in protected areas above ground beneath debris, in tree cavities, in rotting logs, or in abandoned burrows. They are almost strictly nocturnal.

Their food consists primarily of seeds and insect larvae. They will eat fruits, bark, roots, and herbage. In spring they will eat large numbers of lepidopteran (moths and butterflies) larvae and other insect larvae. Deer mice are an important source of food for many small carnivores, owls, and snakes.

Since deer mice do not burrow, the following mammalian species were also considered for their burrowing habits although none are known to reside at the Site.

Mexican ground squirrel (*Spermophilus mexicanus*)

The Mexican ground squirrel ranges from Northern Mexico to the Gulf coast of Texas, extending to western and central Texas and into southeastern New Mexico (Young and Jones, 1982). The species inhabits level grasslands and typically avoids rocky soils. It is typically found in sandy regions of coastal savannas. The species is well adapted for digging and burrowing and makes its home in underground burrows. An individual may occupy more than one burrow, with many escape burrows in addition to the home. The home burrows are 60 to 80 mm in diameter and reach a depth of 125 mm (~5 in), while the refuge and escape burrows are not as deep (Young and Jones, 1982; Edwards, 1946).

The Mexican Ground Squirrel is omnivorous and like other ground squirrels is adapted for life on the ground foraging for seeds, nuts, roots, bulbs, plant stems, leaves, mice, insects and eggs (Walker, 1975). *S. mexicanus* is typically active and feeds during the day. The food habits vary seasonally. In the spring the diet is distinctively herbivorous, consisting of seeds and leaves, nuts and fruits. However, in the early summer, half the diet is composed of insects commonly encountered in the burrows.

Nine-banded armadillo (*Dasypus novemcinctus*)

The preferred habitats of the nine-banded armadillo are drier areas including wire-grass prairie, abandoned fields, shrubs, and cultivated fields (Neill, 1952). The nine-banded armadillo is most successful in riparian habitats with rich organic litter (Humphrey, 1974). The armadillo is an opportunistic species that flourishes in communities that are disrupted by tree harvesting, cattle grazing, and agricultural crops. The most important economic benefits from the nine-banded armadillo are its predation on agricultural pests such as the scarabid beetles and other insects (Fitch et al., 1952). Other positive impacts of armadillo include the predation on venomous snakes, creation of shelters for other wildlife, and soil fertilization. Armadillos prefer to dig their burrows in sandy soils and avoid digging into hard clay.

Attwater's pocket gopher (*Geomys attwateri*)

The pocket gopher inhabits the sandy prairies in coastal Texas where it feeds on plant roots, seeds, and insects. The pocket gopher generally excavates shallow tunnels (<6 in deep) and is responsible for a significant amount of soilurbation in areas where it is abundant (Williams and Cameron, 1986; Rezsutek and Cameron, 2000). The gopher prefers sandy loamy soil and will avoid hard compacted surface soils.

Mammalian Predators

Coyote (*Canis latrans*)

The coyote was selected in the SLERA (PBW, 2005) as the ROC for the mammalian carnivore feeding guild at the Site. Coyotes are opportunistic feeders but most often feed on rabbits, rodents, and carrion (Andelt, 1985), (Windberg and Mitchell, 1990). They typically produce one litter of pups a year and raise the litter in a nursery den (Andelt and Gipson, 1979). Nursery dens are usually located on brush covered slopes, steep banks, thickets, in hollow logs, or on rock ledges. They are also known to den in crevices and shallow caves but they do not normally excavate a den (Bradley and Fagre, 1988), (Roy and Dorrance, 1985).

Coyotes are not typically burrowing mammals nor are any other mammalian predators that may potentially be at the Site such as a bobcat (*Felis rufus*) (Bradley and Fagre, 1988), (Koehler, 1987), or raccoon (*Procyon lotor*) (Chapman and Feldhamer, 1982).

Reptile Predators

Texas rat snake (*Elaphe obsoleta*)

This species is a voracious predator on rodents of all sizes, with large adults being able to take prey up to the size of a fox squirrel (*Sciurus niger*). As juveniles, rat snakes will eat small lizards, baby mice, and an occasional small frog. Rat snakes kill their prey by constriction. Texas Ratsnakes also prey on birds and bird eggs; some individuals frequent chicken coops in search of eggs and chicks (Conant and Collins, 1998). Texas Ratsnakes are skilled climbers, able to climb vertical trunks of trees by clinging to cracks in the bark. They are also capable swimmers. Texas Ratsnakes breed in the spring, shortly after emerging from winter hibernation, and lay clutches of 5 to 20 eggs, which hatch in August or September. The female will lay her eggs in a hidden area, under hollow logs or leaves, or in abandoned burrows (Rossi, 1992). The hatchlings of common rat snakes are vigorous eaters and will double their size rather quickly. If conditions are good, females will sometimes produce two clutches of eggs a year. Rat snakes do not burrow but often enter the burrows of rodents in search of food. Rat snakes will use empty burrows for nesting or resting.

Avian Herbivores and Omnivores

American robin (*Turdus migratorius*)

The American robin was selected in the SLERA (PBW, 2005) as the ROC for the avian herbivore and omnivore feeding guild. No small birds at the Site are likely to burrow.

Avian Predators

Red-tailed hawk (*Buteo jamaicensis*)

While the red-tailed hawk was chosen as the ROC for this feeding guild, it does not burrow. Therefore, an alternate species was considered in this analysis.

Burrowing Owl (*Athene cunicularia*)

The burrowing owl utilizes burrows surrounded by short or sparse vegetation, and open terrain. The owls over-winter on the Texas coast in abandoned burrows of ground-dwelling mammals such as ground squirrels and rodents. They select burrows in short vegetation near tall weedy areas, where insects and rodents are most common. This ensures an adequate food supply and allows the owl to see approaching predators (Johnsgard, 1988; Haug et al., 1993). In Texas the owl is probably dependent on the burrowing activities of ground dwelling mammals like gophers, ground squirrels, and armadillos. The owls can also be found on croplands and in roadside culverts. Owls that are attracted to roadside culverts are in danger of being struck by passing vehicles as they enter or leave the culverts (James and Espie, 1997; Haug et al., 1993).

Estuarine Wetland and Aquatic Receptors

Fiddler crabs (*Uca spp.*)

Fiddler crabs eat algae, bacteria, and fungus scraped off of sand particles, and organic detritus (dead and decaying plant and animal matter) that is mixed with sand in the intertidal zone (Williams, 1984; Heard, 1982). Burrows provide privacy for mating, sleeping and "hibernating" during the winter months. Fiddlers also burrow into the sand to escape from predators and abandon their temporary burrow once the danger has passed. During high tide, fiddler crabs pack sand into the entrance to their burrows and wait until the tide retreats. Fiddler crabs improve coastal wetland ecosystems by excavating burrows that aerate the marsh grasses and underwater seagrass.

Two species of fiddler crabs can be found at the Site. Mud fiddler crab (*Uca rapax*) burrows in muddy marsh sediment that is relatively free of plant roots and gravel. The sand fiddler crab (*Uca pugilator*) prefers sandy soils and is generally found near the shoreline. The depth of the burrows is dependent on the stability of the soil/sediment. The density of burrows can be as high as 27 per m², and reach depths of 60 cm (23 in) (Teal, 1958)(Grimes, et al., 1989). Most of the crab burrows are shallow and crabs living in sandy silty sediment may be restricted to shallow burrows by the lack of soil stability.

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